
**BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554**

In the Matter of)	CC Docket 90-571
)	
Telecommunications Relay Services and Speech-)	CC Docket 98-67
to-Speech Services for Individuals with Hearing)	
and Speech Disabilities)	CG Docket 03-123
)	
)	

To: The Commission

***COMMENTS ON FURTHER NOTICE OF PROPOSED
RULEMAKING***

HANDS ON VIDEO RELAY SERVICES, INC.

George L. Lyon, Jr., Esquire
Lukas, Nace, Gutierrez & Sachs Chartered
1650 Tysons Blvd., Suite 1500
McLean, VA 22102
It's Counsel

October 15, 2004

Table Of Contents

<i>Summary</i>	iii
I. Hands On's interest	1
II. The Commission should treat all Internet based relay as interstate in nature.	1
III. The Commission should adopt a formal certification procedure to ensure TRS providers are qualified to draw from the Interstate TRS Fund or confirm that no federal or state requirement exists under FCC Rule Section 64.604	8
IV. The Commission must establish a VRS speed of answer criterion	14
V. VRS should be a mandatory service offered 24 hours a day	21
VI. The Commission should adopt rules designed to protect communications assistants and video interpreters from abuse	23
VII. Separate rates for IP Relay and traditional relay appear unnecessary	26
VIII. Cost recovery for VRS should be on a per minute basis and should reflect the reasonable costs of providing quality service, and not be limited to bare minimum standards when the Commission lacks minimum standards for all aspects of VRS	27
A. <i>The per minute compensation methodology used for other relay services would appear the only rational compensation scheme for VRS</i>	28
B. <i>VRS rates should be set on a single year basis</i>	30
C. <i>VRS rates should be based on reasonable costs, not limited to that necessary to provide bare minimal service where the Commission lacks standards for all aspects of VRS service</i>	32
D. <i>Reasonable research and development expense is a legitimate and necessary VRS rate element</i>	34

<i>E.</i>	<i>Software costs are legitimate elements of VRS cost recovery</i>	<i>37</i>
<i>F.</i>	<i>The Commission should allow VRS providers a profit on their costs</i>	<i>38</i>
<i>G.</i>	<i>The determination of a rate for functional equivalent VRS requires the collection of data concerning projected grade of service</i>	<i>40</i>
IX.	The TRS Advisory Council should serve as resource to both NECA and the Commission on relay matters	41
X.	Conclusion	43

Exhibit 1

Exhibit 2

Exhibit 3

Exhibit 4

Summary

Hands On Video Relay Services, Inc. comments on the Commission's Further Notice of Proposed Rulemaking ("*FNPRM*") in this proceeding. Hands On is a contract provider of video relay services ("VRS") for AT&T Corp. and for MCI, Inc. It is also a provider of VRS pursuant to the State of Washington's TRS program. It therefore has unique and valuable perspective on the issues raised in the *FNPRM*.

As shown herein, the Commission should treat all Internet relay services as interstate. Proposal to allocate so-called intrastate Internet relay calls for state payment are problematic in their application and ignore the predominate interstate nature of Internet relay.

In addition, the Commission should act on its pending proposal to adopt a certification process for the provision of Interstate relay service. Either the Commission should adopt a federal certification process or confirm that no federal or state certification is required under the rules for an entity operating with Rule §63.01 common carrier authority to provide TRS service pursuant to FCC Rule §64.604.

Adoption of a speed of answer requirement is critical to ensuring that deaf, hard of hearing and speech disabled persons are afforded functionally equivalent relay service. Adoption of a reasonable and phased in requirement will not appreciably increase the cost of VRS service, but will serve to ensure that deaf, hard of hearing and speech disabled persons have equivalent access to the telecommunications network enjoyed by hearing persons. Moreover, Congress plainly stated its intention that blocking rates for relay service be equivalent to blocking rates for the telephone network in general. Lack of an answer speed criterion is frustrating Congress's intent.

Likewise, functional equivalence requires that VRS be made mandatory and offered on a 24 hour basis. The number of interpreters necessary to provide the service on a 24 hour basis and the marginal cost of extending service on a 24 hour basis is minimal.

Rules to protect video interpreters and other communications assistants from abuse are also warranted. The most important of such rules would set a guideline of average video interpreter utilization of 38 to 43 percent. This is necessary to prevent video interpreters from going beyond the recommended limit of 50 percent utilization on an hourly basis. Higher utilization rates risk reduced communications effectiveness, fatigue and repetitive motion injury. Additionally, clarification is necessary concerning when communications assistants and video interpreters may terminate calls that are obscene or harassing. Such calls should be terminable when directed at communications assistants or unwilling third parties. However, the Commission should clarify that consensual calls, even though offensive to the communications assistant must still be handled. The Commission should also relax the rule requiring communications assistants to stay with a call for a minimum of 10 minutes in situations where specialized interpreting skills are warranted or in situations where the interpreter may be embarrassed or humiliated by a sexually explicit call.

The Commission should decline to adopt separate rates for IP relay and traditional relay calls. Although there may be some costs savings and some increased costs between IP Relay and traditional relay calls, the differences do not appear substantial enough to justify setting separate rates for the two closely related services.

With respect to VRS cost recovery, the Commission should adopt the per minute rate methodology used for all other relay services. Rates should continue to be set on a year by year basis, but the Commission must be mindful not to make changes in the rate on short notice. The VRS rate should be

based on a standard of reasonableness, including reasonable costs to meet waived standards, and not limited to the provision of minimal service limited to mandatory minimum standards, especially where many essential aspects of VRS service lack any standards at all. In fashioning the VRS rate, the Commission must ensure that it compares apples to apples. Thus, it should require the TRS administrator to collect information on targeted answer speeds, and to adjust provider costs reflective of outlier answer speed targets. In addition, if the Commission retains the 11.25 rate of return on investment only method rather than affording providers a profit margin on their expenses, the Commission should correct the existing flawed working capital assumption of 30 days, and substitute a 45 day working capital assumption.

Finally, the Commission should expand the role of the TRS Advisory Council and both seek and accept input on all TRS matters from an entity with a diverse, unique and particularized knowledge of relay issues.

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of)	
)	
Telecommunications Relay Services And Speech-to-)	CC Docket 90-571
Speech Services for Individuals with Hearing and)	CC Docket 98-67
Speech Disabilities)	CG Docket 03-123

To: The Commission

COMMENTS ON FURTHER NOTICE OF PROPOSED RULEMAKING

Hands On Video Relay Services, Inc. (“Hands On”), by its counsel, and pursuant to FCC Rule Section 1.401, et seq., submits its comments on the July 30, 2004, Further Notice of Proposal Rulemaking, FCC 04-137 (“*FNPRM*”). In support, the following is shown:

I. Hands On’s interest.

Hands On provides VRS through contract to two of the major interstate TRS providers, AT&T Corp. (“AT&T”) and MCI, Inc. (“MCI”). Hands On is also a certified provider of VRS under the State of Washington’s TRS program. Hands On has been providing VRS since July of 2002, originally in a developmental mode, and since November of 2002 under contract. Thus, Hands On is directly affected by the issues raised in the *FNPRM* regarding the Commission’s TRS policies and requirements.

II. The Commission should treat all Internet based relay as interstate in nature.

The Commission is seeking comment on how to determine which VRS and IP Relay calls are interstate or intrastate and how to perform jurisdictional separation for payment purposes. *FNPRM* at 221-30, 241-42. This exercise is predicated on the view that Section 225 intends for the states to be primarily responsible for the costs of relay services, the exception being for interstate relay. *Id.* at para. 221. Alternatively, the Commission seeks comment on whether all Internet based

relay calls should be considered interstate in nature. *Id.* at para. 230. As we show below, the Commission should treat all Internet based relay services as interstate in nature and the proposals for interstate/intrastate allocation of calls or registration of Internet relay users is both problematic and based on the incorrect factual assumption that a significant portion of Internet relay calls are truly intrastate.

The Commission states that it raises the jurisdictional separation issue “because the record does not indicate that a technological mechanism exists that can provide automatic identification of the location of an IP Relay” or VRS caller. *FNPRM* at 222. It suggests two mechanisms for effecting jurisdictional separation: use of a fixed allocator or registration. Hands On opposes both proposals on practical and legal grounds.

As the record reflects, *see FNPRM* at 223 n. 644, use of a fixed allocator is so problematic as to be unworkable. The most serious problem is how to arrive at the allocator. As the Commission acknowledges, IP Relay traffic now exceeds interstate traditional relay traffic. Thus, traditional relay traffic is unlikely to be a reliable proxy for IP Relay traffic. This is especially true since users of IP Relay are not charged for interexchange calls. This would logically cause more interstate calls to be made using IP Relay than traditional TTY relay service. Accordingly there is no reasonable means to make the allocation between intrastate and interstate traffic using such an allocator, and certainly no basis to assume that traditional TRS traffic would be a sufficiently valid allocator for VRS traffic. *See generally*, NECA and the TRS Advisory Council’s Recommended Internet Protocol (IP) Cost Recovery Guidelines (“*IP Cost Recovery Guidelines*”), Docket 98-67 (October 9, 2002), 12-13.

What is even more unworkable, however, is how a proxy could be constructed to distribute intrastate traffic to the several states for payment. One or more states are likely to balk at the use of any proxy because of the difficulty of achieving a valid and reliable measure among the various states. The resulting litigation and confusion would be a needless diversion of resources for the Commission and the states.

Nor would the problem be solved adequately by a registration system. The deaf, hard of hearing and speech disabled community zealously protects its privacy. Individuals justly could see a registration requirement as violative of that privacy and discriminatory. *IP Cost Recovery Guidelines* at 12. Deaf, hard of hearing and speech disabled persons understandably also would be concerned about opening themselves up to unwanted emails, which could contain viruses or simply be an annoyance. Also, adopting a registration system, is likely to encourage cheating. This is because by the simple means of registering with a false address in a state where the user does not make many calls, the TRS user could defeat the registration system and have his choice of IP Relay and VRS providers as his calls would be considered interstate. Providers, of course, would have no easy means of verifying the bona fides of the registration address, and unfortunately would have little incentive to do so as well. Even were it not for the possibility of falsifying registrations, that system still would be an imprecise method of jurisdictional separation where the Internet relay user travels. Finally, registration adds an additional step in placing a call, something not required when a hearing person picks up a telephone handset to make a call.

There is an even more pressing problem with either an allocation or a registration scheme. Turning IP Relay and VRS over to the states for payment of supposed intrastate calls would likely deny deaf, hard of hearing and speech disabled users their choice of service provider. When a

traditional relay call is made, the caller dials 711 and is connected to one of his state's TRS relay centers. So if he makes an intrastate call, the center naturally and easily may bill the call to the state program. Under this arrangement, however, the TRS user has no choice of provider. An IP Relay call or a VRS call is handled materially differently. IP Relay and VRS providers accept traffic on a nationwide basis because the traffic is routed over the Internet to the provider's web site. Unless the VRS or IP Relay provider had a contract with each of the various states or territories, it would be in the position of having to block callers seeking to make supposed intrastate calls using its service.

The past 30 years of communications policy as enacted by Congress and this Commission has been to encourage competition in all aspects of the telecommunications industry. This may have started with interexchange traffic, but the policy is now well established in favor of local competition as well, as evidenced by the 1996 amendments to the Act. *See, e.g.*, 47 U.S.C. §§ 251-53, 256-57, 259. It is fair to say that choice of service provider is now a key element of local phone service. Given that, functional equivalency for deaf, hard of hearing and speech disabled individuals demands that they have a choice of provider for local (or intrastate) and long distance (interstate) relay service, just as hearing persons have that choice for their telephone service.

However, although IP Relay and VRS consumers currently have a choice among IP Relay and VRS service providers, turning IP Relay or VRS over to the states for funding would likely result in denying consumers their choice of IP Relay and VRS provider. By and large the states choose one vendor for traditional TRS, and can be expected to do likewise if IP Relay and VRS are turned over to them for funding. The result, that consumers will be denied their provider of choice,

is plainly at odds with Congress's and this Commission's policy of competition and choice in the telecommunications marketplace.

In addition, with specific respect to VRS, some states may not be willing to fund the service because of cost considerations. This could result in some state programs being decertified. Pursuant to Section 225(f)(4) of the Act, if a state program is decertified or suspended, the obligation falls on the Commission to ensure continuity of relay services.

Hence the Commission should decline to adopt any system of jurisdictional separation for payment of Internet relay calls. Rather, the Commission should hold, in line with consistent precedent, that Internet based relay is inherently interstate in nature. The Commission has previously determined that Internet access is interstate in nature. *See, e.g., Internet over Cable Declaratory Ruling*, 26 CR 201, 227-28 (2002). In *Intercarrier Compensation for ISP-Bound Traffic*, 23 CR 678, 697 (2001), the Commission explained the basic difference between Internet traffic and traditional local telephone traffic:

The Internet communication is not analogous to traditional telephone exchange services. Local calls set up communication between two parties that reside in the same local calling area. Prior to the introduction of local competition, that call would never leave the network of the incumbent LEC. As other carriers were permitted to enter the local market, a call might cross two or more carriers' networks simply because the two parties to the communications subscribed to two different local carriers. The two parties intending to communicate, however, remained squarely within the local calling area. An Internet communication is not simply a local call from a consumer to a machine that is lopsided, that is, a local call where one party does most of the calling, or most of the talking. ISP's are service providers that technically modify and translate communications so that their customers will be able to interact with computers across the global Internet.

That basic difference in how traffic is handled, is manifest in how IP Relay and VRS providers process traffic, even where the calling party and the called party are located in the same

state. In an Internet relay call, the deaf, hard of hearing or speech disabled person first accesses his Internet service provider, and then accesses the Internet relay provider's central server.¹ That server is unlikely to be in the home state of the calling party. In Hands On's case, its central server is located at its Rocklin, CA call center. The actual Internet call, represented by millions of digital packets, likely would have been routed through various servers scattered around the nation before it actually gets to the Hands On central server. From the Internet relay provider's central server, the call is then routed to the next available communications assistant or video interpreter. That communications assistant or video interpreter could be located in any number of call centers.² In Hands On's case, the call could go to either its Rocklin, CA call center, or it could be routed to its Vancouver, WA call center. From whatever call center handles the call, the video interpreter then completes the call, in most cases by engaging an interexchange carrier to deliver the call.

The above described process, which is integral to the Internet, is inherently interstate, involving multiple computers in multiple locations, across state boundaries. *See Intercarrier Compensation for ISP-Bound Traffic*, 23 CR at 696 n.115. That is why the Commission has determined that ISP service is analogous, though not identical, to long distance calling service, not local exchange service. *Id.* at 696-97.

¹ For redundancy purposes, there may be more than one server which may be located in the same state or in different states.

² The ability to switch calls among various call centers helps in achieving overall network efficiency in two ways. First, it allows a measure of trunking efficiency so that all communications assistants or video interpreters on duty throughout the nation for the provider are available to handle each call. Second, during off-peak hours, traffic can be consolidated in one or more call centers, allowing other call centers to close, thereby saving on HVAC and other operating costs. Traditional relay, employing separate in state call centers does not allow for these efficiencies.

There are no analogous interstate elements to an intrastate traditional relay call. The relay user calls 711, is connected to one of his state's relay call centers, and the call is then placed to the in-state called party. The transmission never leaves the state. There are no elements of interstate traffic to the call. There are no jurisdictional ambiguities. Internet relay is substantially different. The relay center is accessed over the worldwide web; the transmission likely crosses state boundaries, the call center handling the call is likely located in a different state, and the call is likely to be completed by the making of an interstate interexchange call.

Thus, it is readily apparent, in line with Commission precedent, that Internet relay calls should be considered interstate. This is by no means inconsistent with Section 225's wording or intent. Section 225(3)(B) of the Act provides that the Commission shall promulgate regulations which "shall generally provide that costs caused by interstate telecommunications relay services shall be recovered from all subscribers for every telecommunications service and costs caused by intrastate telecommunications relay services shall be recovered from the intrastate jurisdiction." Since Commission precedent plainly supports the conclusion that Internet relay services are by their very nature interstate communications, there is no conflict with Section 225.

Moreover, even were Internet relay service not predominately interstate in nature under the Commission's precedent, Section 225 does not by its terms mandate cost recovery at the state level. Section 225(3)(B) only "generally" requires intrastate relay to be recovered from the intrastate jurisdiction. Where the Commission has good reason not to follow the "general" requirement, the statute allows it to do so. Certainly, the predominate characteristic of the Internet as interstate is one such reason. Additional reasons include the difficulty of determining with any degree of certainty

the origin or in some cases the termination³ of Internet relay calls, as well as the expected loss of choice that the Internet relay consumer would face if intrastate Internet relay cost recovery was imposed on the states.

For all these reasons, from both a legal perspective and as a policy matter, the Commission should treat Internet relay as an interstate communications service.

III. The Commission should adopt a formal certification procedure to ensure TRS providers are qualified to draw from the Interstate TRS Fund or confirm that no federal or state requirement exists under FCC Rule Section 64.604.

The *FNPRM* seeks further comment on whether the Commission should adopt a certification procedure to determine whether TRS providers seeking to draw from the Interstate TRS Fund are qualified to do so. *FNPRM* at para. 250. Although Hands On supports such a requirement, should the Commission not adopt such a requirement, it must clarify that no federal or state certification requirement currently exists as a prerequisite to draw from the Interstate TRS Fund.

Currently there is only one filing requirement under the rules to draw from the Interstate TRS Fund. That requirement is the submission to the TRS administrator of a notice of intent to participate. That requirement is set forth in FCC Rule §64.604(c)(5)(G). However, NECA, through its TRS staff, has stated its outright refusal to pay any TRS provider without the direction of the FCC's Disability Rights Office ("DRO") of the Consumer and Governmental Affairs Bureau ("Bureau"). Discussions with DRO have resulted in DRO stating its view that participation in a state certified TRS program is necessary to draw from the Interstate TRS Fund. That view is no where

³ For example, where a call is made to a person with VOIP service, whether with DSL, cable or some other medium, the provider likely will not be capable of determining the terminating location.

supported by either the TRS rules, Section 225 of the Act, any other rule of this Commission or federal law.

FCC Rule §64.604(c)(iii)(5)(F) sets forth three separate eligibility criteria for receiving payments from the Interstate TRS Fund. The three classes of entities eligible to receive payment from the fund are:

1. TRS facilities operated under contract with and/or by certified state TRS programs pursuant to Rule §64.605; or
2. TRS facilities owned by or operated under contract with a common carrier providing interstate services operated pursuant to Rule §64.604; or
3. Interstate common carriers offering TRS pursuant to Rule §64.604.

Only the first category of eligible providers requires that they operate under contract with or be associated with a state TRS program certified by the Commission. Categories two and three, however, merely cite to operation pursuant to §64.604. Section 64.604 contains no requirement for certification as long as the provider is a common carrier, or is owned by or operated under contract with a common carrier providing interstate services. Notwithstanding the lack of any certification requirement under categories two and three, the staff and the TRS Fund administrator take the position that certification under category one is necessary to receive reimbursement directly from the TRS Fund. It is apparent that the staff is misreading FCC Rule §64.604.

Indeed, paragraph 99 of the *FNPRM* plainly states that the Commission's regulations "currently provide that TRS providers may establish their eligibility by *showing* that they are 'owned by or operated under contract with a common carrier providing interstate [TRS] services' or are "[i]nterstate common carriers offering TRS pursuant to Section 64.604.'" Quoting Rule §64,604(c)(5(iii)(E)(2) and (3), *FNPRM* at notes 289-90 (emphasis added). If the rules do in fact

so provide, then they imply a certification process, or some other process so the "showing" can be made. In fact, however, there is no "showing" requirement in Rule §64.604. If an entity is a common carrier providing TRS pursuant to Rule §64.604, it is entitled to draw from the Interstate TRS Fund. Period. End of story.

What is apparent is that the staff *thinks* there should be a showing requirement and the staff has off the public record directed NECA to refuse to reimburse entities which are not certified as part of state TRS programs. The staff essentially said so in a meeting with Hands On on October 31, 2002. In essence, the staff has amended Rule §64.604, *ultra vires*, to eliminate the third eligibility category in Rule §64.604(c)(iii)(5)(F). The current situation then, where the staff is enforcing a requirement contrary to the express wording of the Commission's rules, is untenable.

In light of the above discussion, the Commission needs to take one of three steps: (1) eliminate categories two and three altogether of Rule §64.604(c)(iii)(5)(F); (2) institute a certification process; or (3) confirm that no federal or state certification process is necessary to draw from the Interstate TRS Fund.

It is plainly apparent that the Commission cannot simply eliminate categories two and three because Section 225(f)(4) of the Act requires the Commission to ensure the provision of relay service even where a state program is suspended or revoked, or where a state refuses to adopt a state TRS program. Although in practice every state in the Union participates in the TRS program, Section 225 of the Act does not require them to do so, and fundamental concepts of federalism prohibit Congress from doing so even if Congress had intended to do so. *See Printz v. United States*, 521 U.S. 898 (1997). Rather, state participation is voluntary. *See* Section 225((f)(1) of the Act. If states choose not to participate or a state program's certification is suspended or revoked, Section

225(f)(4) requires the Commission to “take such steps as may be necessary, consistent with this section, to ensure continuity of telecommunications relay services.” Indeed Section 225(b)(1) expressly provides that “the Commission shall ensure that interstate and intrastate telecommunications relay services are available, to the extent possible and in the most efficient manner, to hearing-impaired and speech-impaired individuals in the United States.” Thus, reliance on state programs to pass on the service offered by interstate TRS providers contravenes the Commission’s obligations under Section 225. It would therefore be folly to rely solely upon state certification as the determinate of eligibility to draw from the Interstate TRS Fund when the states are not even required to establish TRS programs.

Moreover, it is counterintuitive that states should be the certifying and oversight bodies to determine eligibility to draw from the Interstate TRS Fund, which is subject not to their jurisdiction, but to the jurisdiction of this Commission. Lastly, since the issue is compensation for interstate TRS service provided pursuant to Rule §64.604, it seems highly questionable why it should be state commissions which would determine compliance with FCC requirements, rather than this Commission itself. Thus, this alternative is inappropriate and contrary to the Commission’s governing statute.

Plainly, the staff’s reaching to impose a certification requirement to draw from the Interstate TRS Fund flows from the unfortunate circumstance surrounding the apparent fraudulent action set forth *Publix Network Corporation*, 17 FCC Rcd 11487 (2002).⁴ Although understandable, it does

⁴ Significantly, in the *Publix* case, the Commission proposed not to revoke any certification *Publix* had from the FCC or any state commission, but to revoke its common carrier operating authority it possessed pursuant to FCC Rule §65.01. It is apparent that following the *Publix* scandal, the staff determined not to allow any new entrant to draw from the fund without being a part of a state TRS program and so communicated that fact to NECA. That this was done

not justify the staff's ultra vires amendment of the rules. In addition, it is far from clear exactly how a certification process would prevent fraudulent conduct. Nevertheless, there might be some marginal benefit to review of a certification application in preventing fraud. Review of an application might be sufficient to red-flag a potential provider plainly unqualified to offer TRS service, and thus might be justified. Therefore, as a prophylactic measure, a certification requirement may be appropriate. In that case, Hands On would support a uniform federal certification process. Under that process, all entities receiving funds from the Interstate TRS Fund would be required to obtain and maintain certification of compliance with FCC Rule §64.604.

Hands On favors a process which would promote provision of Interstate TRS services, including VRS, by multiple entities, not necessarily affiliated with a state plan. Aside from the fact that the Commission's rules plainly contemplate such service, the public would plainly benefit from the competitive service as well.

First, it would promote service competition and innovation in TRS services. The Commission can take official notice that with the recent increase in VRS providers, there has been increased emphasis on outreach efforts, video quality, and provision of additional services such as "video mail" that are functionally equivalent to telephone services that hearing persons have enjoyed for some time. Second, direct certification by the Commission of VRS providers is likely to decrease the cost of service by allowing providers actually delivering the service to bill the Interstate TRS Fund directly, rather than contracting with a state agency or existing telephone carrier (that would demand a substantial share of the compensation). Third, as discussed above, it is contrary to logic to expect states to supervise adequately interstate TRS providers when the states are not responsible for their

without notice, without a rule making, and totally off the public record is extremely disturbing.

compensation. Fourth, the constitutional authority for state regulation of an interstate provider is dubious.

Hands On supports the proposed rules previously set forth in this proceeding governing certification of interstate TRS providers with two exceptions.

First, the certification period should be five years rather than one year. This is similar to the five year period for state TRS program certification. Recertification for period of less than five years is unnecessary given the requirement for yearly complaint reporting and the Commission's authority to require submission of documentation demonstrating compliance with the rules at any time. In light of this authority, the cost in terms of private and public resources, does not justify any marginal compliance benefit that might arise from yearly certification.

Second, those TRS providers demonstrating they have been providing service in excess of a year, either on their own, through contracts with common carriers drawing from the Interstate TRS Fund, or through contracts with certified state TRS programs, should, in the absence of a substantial and material question of fact or law arising from their certification applications and comments thereon, be presumed to be meeting the requirements of FCC Rule §64.604, and should thus receive certification 45 days following public notice of the filing of their certification applications. The rationale for this provision is simple. These entities will have a history of operation and compliance with the Commission's rules. In addition the public will have had experience in use of their service and the opportunity to file complaints concerning any deficiencies in that service. As a result of that operational history, the Commission will be in the position to have confidence in these entities' compliance with the provisions of Rule §64.604. It need not expend scarce resources flyspecking a certification application under these circumstances.

IV. The Commission must establish a VRS speed of answer criterion.

The *FNPRM* seeks comment on whether the Commission should adopt a speed of answer requirement for VRS and, if so, what that speed of answer requirement should be, when the speed of answer standard should be effective, how it would affect the cost of VRS, and whether sufficient interpreters are available to meet the standard. *FNPRM* at 246. Hands On will address each of these matters below.

As is plain from the record of this proceeding, Hands On supports imposition of a speed of answer requirement. *See, e.g.*, Hands On's Amended Waiver Request (December 12, 2003). VRS is the fastest growing of the TRS services. It is the fastest growing TRS service because it provides for deaf, hard of hearing and speech disabled individuals, the telecommunications service most functionally equivalent to the service available to hearing users of the telephone system. Functional equivalence is manifest in allowing virtually real time conversation, the communication of inflection, and the ability of deaf, hard of hearing and speech disabled individuals to communicate in their natural visual language. Text relay service allows none of these features. Text relay calls are limited by the typing speeds of the communications assistant and the deaf, hard of hearing or speech disabled person. Text relay calls are characterized by long wait periods of silence while messages are relayed back and forth. Text relay calls allow only the written word to be communicated.

As we all know, how you say it can communicate just as much as what you say. Emotions such as joy, sorrow, affection, or contempt cannot properly be communicated solely through the written word. The word, "right" can have several meanings, depending on how it is said. For example, it can mean "yes, I understand you," or it can mean a sarcastic "I don't believe you," or it can mean "I agree with you." In a voice call, that non-verbal communication is expressed by

inflection; similar inflection is expressed through ASL, using facial and body language associated with the intended meaning of each word as it is signed in ASL.⁵ These are meanings that are impossible to communicate from bare written text.

Furthermore, when using text based relay, communication is hindered by the technology used to provide the service. Most TTYs use baudot code or ASCII to send and receive text based messages. Baudot and ASCII were developed for the old teletype machines developed before the last century. Obviously transmission speeds are extremely slow, especially compared to today's standards. Most communication assistants can type faster than a TTY can send a message. In addition, turn taking protocols are required due to the technology limitations. This also hinders communication because parties are not able to interrupt and ask for simple clarification. One must wait until the other party has stopped keying or speaking before one can ask a clarifying question. More often than not, several topics have been covered in that time and the simple clarification has been forgotten or lost in the dialogue.

Statistics show that the average deaf person living in America today reads and writes at a much lower level than the average hearing person. Imagine the frustration of both the deaf and hearing callers when one is trying to communicate complex ideas with a limited vocabulary. It is especially frustrating for the deaf individual when he is able to articulate his thoughts, ideas and opinions using his natural visual language, ASL. IP relay, an alternative to the TTY based relay, uses computers and modern technology to transmit messages, but is still limited by the typing ability of the communications assistant as well as the language barriers described above.

⁵ For example, "right" meaning "I agree with you" is expressed with a friendly smiling face. "Right" meaning "are you sure" or asking for confirmation, would be expressed with a quizzical look on ones face, with eyebrows lifted.

Although VRS is the most functionally equivalent relay service for those deaf, hard of hearing and speech disabled individuals who communicate through ASL, the biggest impediment to functional equivalence is the long wait times users face to access the service. That wait times are a key ingredient of functional equivalence cannot be disputed. The public switched telephone network is designed to provide a busy hour grade of service of B.01 to B.02. *See BOC Notes on the LEC Networks – 1990*, Sec. 4.4 (Bellcore). This means that the overall probability of a call being blocked by network congestion during the busiest traffic hours is one to two percent. As Bellcore explains, the choosing of a grade of service objective requires careful consideration of all factors involved in meeting the objective of balanced service and cost. *Id.* For the PSTN customer, this includes sufficient equipment to provide a dial tone from the local exchange, sufficient trunks to carry the call as it is switched from the local exchange to another local customer, or to another local exchange, a regional tandem switch, an interexchange carrier, etc., ultimately for delivery to the called party. Each of these network elements must be designed for better than the network target service grade in order to meet the overall network service grade.

The Commission has determined that the answering of a relay call by the communications assistant is the equivalent of a hearing person's receiving a dial tone. *Telecommunications Relay Services*, 18 FCC Rcd 12379, 12384 n. 21 (2003). That is because it places the deaf, hard of hearing or speech disabled person in the functionally equivalent position of placing the intended call. In setting a minimum mandatory standard for TRS, the Commission has determined that 85 percent of calls must be answered by a communications assistant within ten seconds. FCC Rule §64.604(b)(2). That approximates a B.15 standard for text-based relay, seven to 15 times worse than the blocking standard hearing persons receive from the telephone network. Given this degraded standard TRS

providers must meet, it is a stretch to suggest that relay service truly provides functional equivalence to deaf, hard of hearing and speech disabled persons.

As the *FNPRM* seem to acknowledge at note 540, the legislative history of Section 225 of the Act, would appear to indicate that the B.15 service grade the Commission has chosen for TRS is grossly inadequate. For example, House of Representatives, in discussing the meaning of functional equivalence and the Commission's obligation to set minimum standards for TRS, stated its expectation that "blockage rates for telecommunications relay services [would] be no greater than standard industry blockage rates for voice telephone services." *FNPRM* at para. 189 n. 540, quoting H.R. Rep. No. 485, Pt. 2, 101st Cong., 2d Sess. at 133 (1990). Nevertheless, this expert agency, no doubt balancing service and cost considerations, set the B.15 service standard for TRS, some seven to fifteen times worse than standard industry blocking rates.

Were the Commission to mandate true functional equivalence for the TRS service, it would mandate an answer speed criterium of 98 percent of calls answered within ten seconds for TRS. However, that is a matter for another day. The question here is, in light of Congress's clear expectation that the Commission set minimum answer speeds for TRS services in defining functional equivalence, is there any reason why the Commission should not set a minimum answer speed for VRS?

The record of this proceeding shows it is now time for the Commission to set a VRS answer speed. When the Commission initially approved payment for VRS, very little VRS was provided, and there was only one provider. At that time, VRS was provided via ISDN lines from public locations, not over the Internet. Thus, demand for the service was severely restricted. Since that time, VRS demand has grown exponentially. As of October of 2003, there were more than 360,000

VRS minutes reported by six providers. Now in October of 2004, the latest available report shows more than 730,000 minutes of VRS provided in May of 2004. *See* Monthly TRS Fund Status Report (available at www.NECA.org). It is reasonable to presume that sometime in the 2004-05 time frame VRS minutes will total in excess of 1,000,000 minutes per month

Hands On knows of no reason why it could not meet a speed of answer requirement. The only limitation at this time in meeting a speed of answer requirement is one of cost. The present VRS reimbursement rate of \$7.293 does not allow meeting a speed of answer requirement of anything less than one minute. That is a plainly inadequate answer time compared to the instantaneous dial tone available to hearing persons.

The Commission has raised the issue of whether there is an adequate supply of interpreters to allow providers to meet a VRS answer speed. The answer to that question is currently yes. However, in order for there to continue to be sufficient interpreters, it is important for the Commission to recognize that video interpreting is stressful hard work requiring well trained personnel. Video interpreters should be entitled to adequate compensation and suitable working conditions. Video interpreters require adequate rest periods to prevent repetitive motion injuries, for example.⁶ Expecting video interpreters to have consistent utilization rates in excess of 45 percent, risks burnout, mental, physical and visual fatigue and repetitive motion injury. High answer speeds such as 40, 50 or 60 seconds or more are indicative that video interpreters are being pushed beyond acceptable limits. Thus, it is necessary for the Commission to expect VRS providers to staff

⁶ Hands On's sister company, Hands On Sign Language Services, Inc. has been in the interpreting business for more than 15 years. It thus fully understands the appropriate working conditions for interpreters.

for average answer speeds of 30 seconds or less and utilization rates of less than 50 percent. The costs of such staffing are not excessive.

Attached herewith as Exhibit 1 is a spreadsheet showing staffing requirements for a hypothetical call distribution of 155 calls over an eight hour period at various grades of service, from 85 percent of calls answered within five seconds to 85 percent of calls answered within 300 seconds. The calculations were performed using the free Westbay Call Centre Calculator available at www.erlang.com. The calculator employs the Erlang C traffic model which assumes that calls on hold will wait until answered. Traffic assumptions employed were 320 second average calls and 60 second average wrap up times. These assumptions are consistent with Hands On's operational experience. The results indicate that the difference between a 85/5 second answer speed and an 85/300 answer speed is one additional call agent, from 3.75 call agent shifts (of eight hours) to 4.75 call agent shifts, with a maximum number of six agents employed in the busy hour.⁷

Hands On also performed this study on a typical heavy day's usage from its own operational data. That day, occurring during the summer of 2004, is presented in Exhibit 2. It shows an actual call distribution handled by Hands On's call center from 8 am to 4 pm eastern time. Using the Westbay Call Centre calculator, various answer speed targets of five, ten, 30, 60, 120 and 300 seconds were employed. The difference between the five second and 300 second target answer speeds was only one and one-half of an agent shift. However, review of the data also showed that with the call volumes incurred, utilization rates on all days exceeded 50 percent for most hours of the day. Adjusting the number of agents so that utilization rates would not exceed 50 percent resulted in a constant number of call agent shifts of 11 no matter what the answer speed target.

⁷ Copies of the individual calculations are included with Exhibit 1.

This analysis indicates that the issue of protecting video interpreters from being overworked and achieving a reasonable answer speed go hand in glove. VRS providers need to be allowed sufficient funding to hire a sufficient number of interpreters so that they are not overworked.⁸ At present usage levels, if they are allowed sufficient funding, providers can meet a reasonable speed of answer standard.

What is that reasonable speed of answer standard? Ultimately, Hands On believes the standard should be set at the 85/10 TRS speed of answer standard. However, Hands On believes that standard needs to be phased in, in light of substantially increasing VRS demand and the need for sufficient time to recruit and train sufficient numbers of interpreters. Hands On supports an initial target answer speed criterion of 30 seconds, averaged over a monthly basis, to be effective six months after establishment. The staff would then be delegated authority to lower the standard periodically after reviewing call statistics and provider input concerning any issues of interpreter shortage or excessive cost, with the ultimate goal of a permanent answer speed of 10 seconds.

The answer speed criterion should be measured from the time the call reaches the VRS provider's call queue to the time the video interpreter accepts the call. The deaf, hard of hearing or speech disabled person may experience some additional delay both in getting through on the Internet and in effecting a hand-shake between his video equipment and the interpreter's station. Those delays, which are of a technical nature, should not count toward the answer speed calculation.

⁸ The Commission raises this very issue with respect to VRS cost recovery. See *FNPRM* at para. 238.

V. VRS should be a mandatory service offered 24 hours a day.

The Commission seeks comment whether VRS should be made a mandatory service and offered 24 hours a day, seven days a week. *FNPRM* at paras. 243-45. The Commission also seeks comment on how mandatory 24 hour VRS would affect interpreter working conditions, whether there is a sufficient supply of interpreters to handle the increased traffic, and the effect on state programs of mandatory VRS service.⁹

The case for mandating VRS on a 24 hour basis is manifest. As discussed above, VRS is the most functionally equivalent relay service available. Pursuant to Section 225(b)(1) of the Act, it is the Commission's duty to "ensure that interstate and intrastate telecommunications relay services are available, to the extent possible and in the most efficient manner, to [deaf, hard of hearing] and speech impaired individuals in the United States." Moreover, Congress has directed the Commission to "require that telecommunications relay services operate every day for 24 hours per day." Respectfully, this is not a matter within the Commission's discretion. Section 225 requires that the Commission mandate VRS on a 24 hour basis unless it is not possible to do so.

Were demand for VRS so small as to make 24 hour service not cost effective, there might be an argument against mandating 24 hour service. However, VRS is now sufficiently mature that sufficient demand exists to support 24 hour service without there being gross inefficiencies. Concurrently, the costs of adding 24 hour service are relatively minimal. There is little or no incremental cost in terms of equipment, network infrastructure or administrative support. What

⁹ As discussed above, there should be no effect on state programs of mandating VRS since VRS, as an internet protocol service is inherently an interstate service, and since VRS demand is not sufficient to justify the establishment of 50 odd different VRS call centers. Thus, VRS should continue to be paid for from the Interstate TRS Fund.

incremental costs there are occur mostly in utility usage and the personnel required to handle the traffic.

VRS is currently being offered from 7 am to 3 am eastern time, weekdays; weekend times are slightly more limited.¹⁰ Thus, there generally are only four hours of the night when service is not being provided. However, if we look at all VRS providers, it is fair to say that on average, they operate 18 hours a day.¹¹ Based on Hands On's experience, approximately a total of three percent of calls are made in the first hour and last hour of its daily operation. It is reasonable, to assume, therefore that during the six hour time period of 1 am to 7 am only about five percent of daily traffic will be offered. Assuming a million minutes of VRS traffic per 30 day month, it would require only eight additional interpreter positions per night industry wide to handle that traffic, or approximately 11 additional interpreter positions on a yearly basis.¹² Spreading the traffic out evenly among six VRS providers would result in increasing the number of interpreter positions to eighteen at a speed

¹⁰ HOVRS offers the service from 7 am to 1 am, eastern time. See www.hovrs.com. Sorenson Media, Inc. offers the service from 8 am to 3 am eastern. See www.sorensonvrs.com.

¹¹ See, e.g., www.hamiltonrelay.com, www.sprintrelay.com for their hours of operation. The hours of operation of ATT and MCI are subsumed within Hands On's operational hours.

¹² This is calculated as follows: 5 percent of 1,000,000 minutes equals 50,000 minutes. 50,000 divided by 30 equals 1665 minutes a night. Assuming an average call lasts five minutes, some 333 calls would occur between 1 am and 7 am, or an average of 56 calls an hour. The Westbay Call Centre Manager calculates that at an answer speed criterion of 85 percent of calls answered within 30 seconds, nine interpreter positions would be required to handle that amount of traffic per night. However, adjusting to achieve less than 50 percent utilization, increases that number to 11. Since we are talking six hour shifts, the 11 positions actually translate into 8.25 eight hour shifts. Assuming a 40 hour work week, it requires a total of 10.61 (rounded up to 11) extra interpreters to handle the projected number of calls seven days a week. See Exhibit 3. For ease of computation, an even distribution of calls is assumed. Such a distribution is the most inefficient from a trunking perspective and thus amounts to a conservative assumption. An uneven distribution of traffic would therefore result in fewer additional positions to provide 24/7 VRS.

of answer target of 30 seconds, or 12 at a speed of answer target of 300 seconds.¹³ Assuming an average salary with benefits of \$70,000 per video interpreter, it is easily seen that the marginal cost of 24/7 VRS is likely to be approximately \$1,300,000 per year. Assuming a VRS compensation rate of \$8 per minute, the cost of 24/7 operation would be approximately one and one third percent of the total VRS cost if the monthly VRS average number of minutes were approximately 1,000,000.¹⁴

In sum, as the most functionally equivalent relay service, Section 225 of the Act requires the Commission to mandate VRS on a 24/7 basis. The cost of doing so is reasonable, and the effect on the available labor pool of interpreters is minimal.

VI. The Commission should adopt rules designed to protect communications assistants and video interpreters from abuse.

As discussed above, the issue of speed of answer is intimately tied in with the issue of video interpreter utilization rates. Because of the Commission's aggressive actions to control VRS costs, there have been growing complaints of interpreter abuse throughout the relay industry. The principal complaint is that interpreters are overworked and forced to forego necessary breaks. Hands On knows from its own experience that interpreter utilization rates regularly exceed 50 percent during the busier hours of the day, despite Hands On's dedication to protect its interpreters. Although it is not Hands On's intention to urge this Commission to intrude unjustifiedly into relay labor matters, we urge the Commission to set as a reasonable utilization target for VRS providers a 38-43 percent utilization rate on an average monthly basis. Hands On's experience is that average monthly utilization rates at or above 45 percent result in numerous instances of utilization rates exceeding 50

¹³ See Exhibit 4.

¹⁴ 1,000,000 minutes times 12 months, equals 12,000,000 minutes. 12,000,000 minutes times \$8, equals \$96,000,000.

percent both in hourly increments and on a daily basis. For example, in July of 2004, Hands On experienced a 46.7 utilization rate. Seven out of 31 days in that month, it experienced a utilization rate in excess of 50 percent, the highest of which was 71 percent. Even on days in which its utilization rate was below 45 percent, it had many instances of hourly utilization rates in excess of 50 percent.

The issue here is a financial one. VRS providers have been placed in a cost squeeze by the contraction of the VRS payment rate. Moreover, if one or more VRS providers budget for a high utilization rate, it serves to lower the VRS payment rate for all providers, who must then raise their utilization rate in order to compete and stay in business. The 38-43 percent target rate is necessary to correct this problem and to protect interpreters.

Not only is this target necessary to protect the health of interpreters, it is necessary to assure proper VRS quality. Tired interpreters cannot interpret effectively and accurately as FCC Rule §64.604(a)(1)(iv) requires. Isolated violation of the utilization target should not result in Commission action. However, consistent violation of the target should result in close Commission scrutiny and potential sanctions including forfeitures and/or debarment from receiving payment from the Interstate TRS Fund until the excessive utilization rates are corrected.

A second area of interpreter abuse merits the Commission's attention. As Hands On has previously explained,¹⁵ it has experienced certain isolated instances of obscene and harassing calls. Some have been directed at its video interpreters, while others have been directed at called parties. In addition, Hands On has handled certain calls between consenting parties which are of an explicit sexual nature. FCC Rule §64.604(a)(2)(ii) mandates that VIs are prohibited from "intentionally

¹⁵ See Request for Waiver (September 22, 2003).

altering a relayed conversation and, to the extent that it is not inconsistent with federal, state, or local law regarding the use of telephone facilities for illegal purposes, must relay all conversations verbatim unless the relay user specifically requests summarization.” 18 U.S.C. §1462 makes it a crime to transport over the Internet obscene and indecent material. Additionally, Section 223(a)(1) of the Act prohibits making interstate calls which are obscene or indecent with the intent to harass or annoy another person. As Hands On has previously explained, it fears liability under the foregoing provisions. Moreover, Hands On fears sexual harassment and other claims against it should it require its video interpreters to complete such calls.

Hands On therefore urges the Commission to clarify that a VRS provider may immediately terminate a call where its video interpreter is subjected to harassment or indecency. Similarly, Hands On requests clarification that it may terminate calls directed to third parties that appear designed to harass or annoy such parties, either as a result of obscenity or other threatening or annoying conduct. Finally, to protect VRS providers from sexual harassment complaints with respect to consensual, explicit calls, Hands On requests that the Commission confirm that such calls must by law be completed verbatim and the verbatim translation of such calls is a bona fide occupational qualification for a VRS interpreter.

This proceeding raises a related issue with respect to the requirement that an interpreter handle a call for a minimum of 10 minutes. *See* FCC Rule §64.604(a)(1)(v). There are circumstances where an exception is warranted to that rule for VRS. One exception is where the topic of the conversation is of a specialized nature, such as law or medicine, and there is available an interpreter more qualified to handle that specialized subject. Another is where the nature of the conversation is such as to embarrass or humiliate the interpreter, such as a sexually explicit call. In

those limited circumstances, the interpreter should be allowed to hand-off the call to another available qualified interpreter without regard to the 10 minute minimum requirement in the same manner as the rules allow a change of interpreters to accommodate the caller's gender preference.

VII. Separate rates for IP Relay and traditional relay appear unnecessary.

The Commission is seeking comment whether it would be appropriate to promulgate separate payment rates for text relay sent over the Internet ("IP Relay") versus traditional TTY relay. *FNPRM* at para. 233. The Commission supposes without citation to any evidence of record that the costs of providing IP Relay may be less than the cost of traditional TTY based relay. *Id.* Hands On questions the Commission's underlying premise.

Hands On can suppose only a couple areas of cost savings of IP Relay versus TTY relay. One is the lower billing costs in having to bill only the Interstate TRS Fund as opposed to having to establish relationships with various state TRS programs and having to bill the various states for TTY relay. However, if the Commission turns IP Relay funding to the states, whatever cost savings there might currently be as a result of payment solely from the Interstate TRS Fund will be lost.

The other possible savings of IP Relay compared to traditional relay is in the trunking efficiency among relay centers which the Internet allows. Thus, where one relay center is fully blocked, a provider can rout a waiting call to another relay center, rather than having to wait for an available communications assistant at only one center.

On the other hand, IP Relay providers likely have higher network costs due to the higher cost of computer work stations and their associated Internet infrastructure. Moreover, IP Relay providers must provide free interexchange service to IP Relay users. For these reasons, Hands On supposes IP Relay costs might be a bit higher than traditional relay costs. In any event, the difference in cost

would appear minimal. The highest cost of any relay service is the communications assistant labor costs. Thus, Hands On sees little or no benefit to establishing separate payment rates for IP Relay as opposed to traditional TTY relay.

VIII. Cost recovery for VRS should be on a per minute basis and should reflect the reasonable costs of providing quality service, and not be limited to bare minimum standards when the Commission lacks minimum standards for all aspects of VRS.

The Commission seeks comment on a variety of issues relating to VRS cost recovery. *FNPRM* at para. 234-40. These include: (1) whether to adopt permanently the per minute methodology now used for all other forms of TRS, including VRS on an interim basis; (2) whether to adopt an alternative arrangement such as a lump sum payment with a true up; (3) whether to clarify the data collection guidelines being used in for TRS as applied to VRS; (4) whether additional rules are needed with respect to VRS data collection; (5) whether VRS data collection should continue to be done on a one-year basis or modified to a two-year basis; (6) whether to enact rules or guidelines with respect to efficient utilization of labor and the provision of functionally equivalent VRS;¹⁶ and (7) whether to continue to use the 11.25 percent rate of return on capital investment or some alternative approach, how to apply any such approach and how to consider tax allowances in fashioning the VRS rate.

To the extent not already addressed, Hands On will address each of these matters in the discussion below. Preliminarily, however, we must observe that the touchstone of Section 225 is functional equivalence. Section 225 mandates this Commission to require relay service to be

¹⁶ Hands On has addressed above the issue of an appropriate guideline for interpreter utilization. As to other classes of employees, adoption of efficiency guidelines would likely be fraught with difficulty. As discussed below, however, the standard of Section 225 of the Act is one of reasonableness. Reasonableness implies provider discretion rather than Commission micro management and second guessing, however.

functionally equivalent to the extent technically possible to the telephone service available to hearing persons. That means that deaf, hard of hearing and speech disabled individuals are entitled under the law to the same functionality that hearing persons enjoy over the telephone network if that functionality is technically achievable.

Functional equivalence is not whatever the Commission, in the exercise of discretion says it is. Functional equivalence is an objective standard. If hearing persons have it, deaf, hard of hearing and speech disabled persons are entitled to it, if it is feasible to provide it to them, and it is up to this Commission to ensure that functional equivalence is provided to the extent possible. See Section 225(a) of the Act. This discussion is a necessary backdrop to any discussion of VRS cost recovery, because VRS providers must be compensated sufficiently for providing functionally equivalent service to their deaf, hard of hearing and speech disabled users.

A. The per minute compensation methodology used for other relay services would appear the only rational compensation scheme for VRS.

In Hands On's view the only reasonable approach is for the Commission to adopt permanently the per minute compensation scheme used for other TRS services. This methodology is certainly not perfect. It is predicated on estimated costs and estimated demand. This methodology has produced some past questionable results, most notable the \$17 plus rate that existed for the 2002-03 period. However, rate making is not an exact science. The goal is not to arrive at the perfect rate, because that is not a realistically achievable goal. The goal is to arrive at a rate within a zone of reasonableness. Plainly the issue of forecasting demand is a serious one. Under forecasting demand is likely to result in a rate which is higher than it should be, while over forecasting demand is likely

to produce an inadequate rate. However, as the service matures, the ability of providers to accurately forecast demand, and costs, will improve.

The *FNPRM* seems concerned to minimize the incentive of providers to overstate projected VRS revenue requirements. See *FNPRM* at para. 236. That is certainly a valid concern. Equally valid, however, is the concern of providers that the Commission has taken an unduly restrictive view of the reasonable costs of service.

The lump sum method, with a true up, about which the Commission seeks comment, would not serve the purpose of promoting functionally equivalent VRS. The most important flaw of that method is the lack of a reasonable way such a lump sum would be distributed to VRS providers, including new entrants. If done on an equal basis, it would be unfair to VRS providers who serve proportionately higher demand. If done on any other basis, it risks unfairness to providers whose actual service levels exceed the proportion of the lump sum payments. In addition, such a method is particularly inappropriate while VRS demand levels are uncertain. Providers receiving too low of a lump sum could face a cash flow crunch, while providers receiving too high a lump sum would receive a free loan. Indeed, the lump sum method could have the perverse result of incenting providers to limit the amount of VRS provided, so as to maximize their cash holdings. Moreover, the Commission's discussion of the lump sum method leaves unanswered the question of how the lump sum is determined. The per minute rate method is at least simple. For every minute of VRS provided, the provider is compensated at the going rate.

Moreover, although the *FNPRM* cites to the Interstate Common Line Support mechanism, as a potential cost recovery model, see *FNPRM* at para. 236 n. 662, Hands On fails to see how that

program is analogous to VRS. That program is a funding mechanism for universal service, i.e., a subsidy program for high cost *lines*, and is compensated on a *per line* basis. VRS is a telecommunications *service* to provide deaf, hard of hearing and speech disabled persons access to the telephone network, the costs of which are dependant principally on the number of minutes of use. In any event, the cost recovery procedures established for universal service appear far more complicated, unnecessarily so if applied to VRS, compared to the per minute cost recovery scheme currently used for all TRS service, including VRS.

Accordingly, Hands On supports permanent adoption of the per minute methodology for VRS cost recovery.

B. VRS rates should be set on a single year basis.

The Commission requests comment on whether VRS rates should be set on a two-year instead of a one-year basis. *FNPRM* at para. 247. The *FNPRM* recites that the VRS rate has varied widely, from \$5.143 in 2000 to \$17.044 in July of 2002 and then \$7.751 in 2003, and posits that the lack of consistency may make it difficult for providers to plan and budget. The *FNPRM* therefore asks whether a longer rate period -- such as two years -- would allow the service to be offered more effectively and efficiently. Hands On is not convinced that a longer rate period is the answer here.

First, it is important to get the facts straight. Although it is true that the rate has varied, \$5.153 is not a rate at which VRS was ever provided. Historical data from NECA shows that no VRS was ever provided at that rate. Second, Hands On maintains that the \$7.751 rate set with 12 hours advance notice to the industry in July of 2003 was a mistake, a mistake that the Commission partially corrected in raising the rate to \$8.854 in July of 2004, retroactive to September 1, 2003. Moreover, the \$7.751 rate was set in the face of the Bureau's admission that it lacked sufficient data

and analysis to set the proper rate. *Telecommunications Relay Services*, 18 FCC Rcd 12823, 12835 (2003). Similarly, there is little data to suggest how the Commission came up with the \$8.854 rate. *See, e.g.*, Hands On's Petition for Partial Reconsideration at 11-17. Consistency is certainly needed in VRS rate setting. However, even more important is a transparent methodology that providers can understand and know for what they will be compensated.

There is some appeal for a two-year VRS rate in terms of giving providers certainty of payment so that they can plan and budget adequately on a longer term basis. They are also some disadvantages. Although demand for VRS has increased at a high rate over the previous three years, plainly at some point that demand will level off to a consistent growth rate. When that will happen, however, is uncertain. Expected VRS demand is a major determinant of projected VRS cost. Higher demand requires more capital investment and larger payrolls but serves to decrease per minute cost as a result of economies of scale and network (trunking) efficiencies. Lower demand raises the opposite considerations. Demand forecasting will be more accurate on a short term basis, rather than a long term basis. Accurate demand forecasting is necessary to arrive at a rate that is neither too high, nor too low. At some point in the future, when demand is more predictable, a two year reporting period may very well make sense, but for now when demand growth rates are uncertain, it would appear more prudent to maintain a one year reporting period.

What does make sense, however, is for the Commission to avoid situations like occurred in July of 2003 when the VRS rate was cut some 55 percent from the 2002-03 rate and some 45 percent from NECA's recommendation. That immediate rate cut wrought havoc with the industry, causing cuts in service hours, layoffs of interpreters and support personnel, and intolerable waiting periods for VRS consumers.

- C. *VRS rates should be based on reasonable costs, not limited to that necessary to provide bare minimal service where the Commission lacks standards for all aspects of VRS service.***

A fundamental problem with VRS cost recovery is the Commission's apparent position stated in the *FNPRM* that providers are only entitled to compensation for providing VRS at the minimum mandatory standards set forth in Section 64.604. *FNPRM* at paras. 188-90. The problem with that position is that it falsely assumes that the Commission has or should have a minimum mandatory standard for every aspect of VRS service. The Commission does not have such standards, and should not be in the business of micro-managing VRS.

Simply stated, that standard is insufficient to evaluate the entire set of VRS expenses. This is most significant in the area of engineering and technical expenses. For example, there is no minimum FCC standard with respect to computer platforms for which VRS must be compatible. There is no standard that VRS must be compatible with Microsoft Windows. There is no standard that VRS must be compatible with any video phone device. There is no standard that VRS must be compatible with an Apple MacIntosh computer. There is no standard that VRS must be compatible with any particular computer or video system. Yet, unless a provider's VRS is compatible with at least one computer or video system, it cannot provide VRS at all, and if not compatible with each of them, a provider's service would be inaccessible to large numbers of potential VRS users. This is plainly inconsistent with Section 225's requirement that relay service be made widely available to persons needing it.

Similar is the issue of frames per second of VRS transmission. The FCC has no minimum standard for VRS frames per second. Does this mean the Commission will allow engineering costs to achieve only one frame per second, which is clearly insufficient to provide VRS, or will allow the

full 30 frames per second video which is the equivalent of full motion television?¹⁷ The standard articulated in the *FNPRM* cannot answer that question for the simple reason that the Commission has no mandatory minimum standard for video quality. Yet, plainly some degree of video quality is necessary to provide VRS and to visually read finger spelling at normal conversation speed. Hearing persons do not have to alter the speed of their conversations when using any phone service. The standard set forth in the *FNPRM* at para.189, of disallowing engineering expenses beyond that necessary to meet minimum mandatory standards is simply insufficient to evaluate rationally all VRS costs, engineering or otherwise.

What is the appropriate standard for cost recovery? Hands On suggest that the proper standard for judging VRS expenses for which there is no minimum standard, is one of reasonableness, having proper regard for the cost to be incurred versus the benefit to be achieved. To hold otherwise would impede the technical development of TRS service in defiance of the express requirement of Section 225, and impose a standard the FCC simply is not and cannot apply without micro-managing every facet of the VRS service.

Section 225 of the Act requires providers to be reimbursed their *reasonable* costs of providing service. Moreover, Section 225 requires the Commission in formulating its regulations for TRS not to discourage technical innovation. Hands On fully agrees with the Commission that Congress's exhortation is not a license to tap the Interstate TRS Fund to provide relay service to deaf, hard of hearing and speech disabled persons beyond that which is functionally equivalent to the telephone service available to hearing persons. But by the same token functional equivalence

¹⁷ See *Closed Captioning and Video Description of Video Programming Implementation of Section 305 of the Telecommunications Act of 1996 Video Programming Accessibility*, 11 FCC Rcd 19214 (1996).

is not a bare minimal lifeline service as the *FNPRM* can be read to imply. *See FNPRM* at paras. 194-99.

This is aptly illustrated by the FCC's decision not to specify any minimum standard for IP Relay security. As the Commission explained, "We will not require ... that providers adopt any particular technology in this regard. We will allow TRS providers to determine for themselves the level of security they will offer consumers, and the means by which they will protect the privacy of the Internet-based TRS callers and their personal identification information, so that no aspect of a relayed conversation is retrievable in any form." *FNPRM* at para. 51. Since the FCC is not setting a mandatory minimum standard for call security, how is the FCC to evaluate provider costs incurred in ensuring call security? The answer again is the reasonableness standard set forth in Section 225. That standard plainly requires the Commission to evaluate cost versus benefit with due regard for the service the deaf, hard of hearing and speech disabled community receives.

It was wholly appropriate for the Commission to have examined VRS costs in light of the \$17.044 VRS rate prevailing in the 2002-03 period. In Hands On's view, there was likely a problem with the formulation of that rate. That being said, however, it is apparent that the examination of the 2003-04 VRS cost data swung the pendulum way too far in the direction of cost control, without appropriate concern for the effect on VRS quality and availability. The Commission should therefore revisit this issue to adopt a reasonableness test.

D. Reasonable research and development expense is a legitimate and necessary VRS rate element.

A prime example of the need for a reasonableness standard is with respect to research and development expense. The *Report and Order* portion of the *FNPRM* holds that the reasonable costs

for which TRS providers will be paid must relate to the provision of the service in compliance with the applicable non-waived mandatory minimum standards. *FNPRM* at para. 199. Apparently the logic behind this holding is that functional equivalence is determined by the rules' minimum standards that are not waived. *Id.* The major flaw of this of this position, however, is that functional equivalence is determined by the minimum standards, *where there are such standards*, not by the unwaived minimum standards. The waivers that have been granted, for example, for speed of answer, choice of interexchange carrier, and automatic routing of emergency calls, have been granted not because they are unnecessary to achieve functional equivalence, but because they are not practicable or because they are not feasible to implement at this time. The *FNPRM* itself, makes this point very clear. *See FNPRM* at paras. 115, 118, 127, 132 & 135.

By definition, the mandatory minimum standards are those items the Commission considers essential to achieve functional equivalence with the telephone service available to hearing persons. The waivers in question do not change the definition of functional equivalence. Rather, each of the waivers that has been granted has been granted because of the technical infeasibility of providing the waived feature, *not* because of a Commission determination that the waived functionality is unnecessary to achieve functional equivalence. Thus, research and development expenses which are designed to meet waived standards are necessary to achieve functionally equivalent VRS. Those expenses should, therefore, be included in the rate calculation to the extent they are otherwise reasonable.

The exclusion of research and development costs is also contrary to precedent. The Commission has held that research and development is an appropriate element of a rate when it is for the benefit of the consuming public. *Communications Satellite Corporation*, 90 F.C.C.2d 1159

(1982). See *Public Service Company of New Mexico v. FERC*, 832 F.2d 1201, 1214-15 (10th Cir. 1987). See also Satrom, *Office of Consumers' Counsel v. FERC*, 2 Energy Law Journal 119 (1981); Comments of Ed Bosson in Docket 98-67 (May 21, 2004) (Mr. Bosson, Texas Relay Administrator, has aptly been described as the father of VRS). Where research and development stand to benefit deaf, hard of hearing, and speech disabled consumers, those expenses are manifestly appropriate cost elements to the VRS rate.

Indeed, exclusion of research and development is particularly inappropriate given Congress's direction to the FCC that its regulations "not discourage or impair the development of improved [relay] technology." 47 U.S.C. §225(d)(2). Moreover, the Commission's waiver orders, including the *FNPRM*, plainly require providers to discuss their research and development efforts designed to meet the waived requirements. See *Telecommunications Relay Service*, 18 FCC Rcd 12379 (2003); *FNPRM* at paras. 111, 121 & 140. The clear implication of the requirement to report on research and development efforts is that the Commission expects providers to conduct research and development to meet waived standards. This is especially the case given that these waivers are not indefinite.¹⁸ Rather, each waiver is time limited with the earliest waiver expiring January 1, 2006, in 14 months. How can the Commission expect providers ever to meet these waived standards if they cannot build the cost of meeting these standard into the TRS rates?

Furthermore, at paragraph 121 of the *FNPRM*, the Commission exhorts providers to work diligently to meet the needs of callers and suggests that competition among VRS providers will

¹⁸ Were a minimum standard to be permanently waived for any TRS service because the Commission finds that meeting the waiver is not necessary to functional equivalency, it might be reasonable to exclude research and development for such a standard. Such an example would be the 60 wpm typing standard for VRS interpreters, since that standard is plainly inapplicable to VRS.

achieve that result. The problem with that exhortation, however, is that providers have no financial incentive to spend money to meet waived standards given that the Commission limits them only to their costs of providing VRS at the minimum unwaived standard, denies them a profit margin on VRS expenses, and does not allow them to include the research and development costs of meeting the waived standard in the VRS rates. Given that the Commission expects research and development to meet waived requirements, research and development expense must be included in the VRS rate.

E. Software costs are legitimate elements of VRS cost recovery.

The *Report and Order* portion of the *FNPRM* appears to exclude “proprietary” software costs as unreasonable without any explanation or even a definition of the term. *FNPRM* at para. 189.¹⁹ There is no reason why such costs are per se unreasonable. FCC Rule §64.604(e) provides that FCC Rule Part 32 is the basis for VRS cost accounting. Nothing in FCC Part 32 suggests that proprietary software, as opposed to non-proprietary software, whatever the difference, is not a

¹⁹ The *FNPRM* also states without any citation to the FCC’s rules, generally accepted accounting principles, or any other authority, that as a general matter engineering expenses, apparently including software costs, cannot be reported as immediate expenses in the year they are incurred. *Id.* There would appear to be no support for this position in the FCC’s rules or precedent. Certainly to the extent an engineering expense is a capital item, such as a start-up expense, it should be treated as such. To the extent the expense is an operational or maintenance item, however, it should be treated as such as well and expensed.

FCC Rule §64.604 references TRS costs to the FCC’s accounting rules in Part 32. FCC Rule §32.6535 classifies engineering expense as an expense account, not as a capital account. Similarly, engineering expense is not one of the accounts that is included in the determination of capital investment pursuant to Rule §65.820. Moreover, the TRS administrator and FCC personnel recently met with TRS providers to discuss the proposed data collection form for 2005-06. That form calls for engineering expenses to be reported as a current expense item, not as a capital investment item.

legitimate cost item.²⁰ Certainly to the extent a provider develops software independent of VRS for sale and seeks to impose the entire cost of that software upon the Interstate TRS Fund, such a cost allocation would be unreasonable. Likewise, to the extent the software is used for VRS purposes and for non-VRS purposes, the provider is only entitled to the VRS portion of the software's costs. But to exclude the entirety of such expense because the software is deemed proprietary is simply arbitrary and plainly unlawful.

F. The Commission should allow VRS providers a profit on their costs.

The Commission seeks comment on the application to VRS of the 11.25 per cent rate of return on investment to compensate providers for their cost of capital. *FNPRM* at para. 239.

Hands On continues to view the application of the 11.25 percent rate of return methodology as largely inapplicable to a labor intensive enterprise, such as VRS. Rather, for the reasons stated of record in Docket 98-67 and in this proceeding, Hands On urges the Commission to allow a reasonable profit margin on VRS costs equivalent to that allowed in the areas of government contracts.

If the Commission retains the 11.25 rate of return on investment methodology, it needs to fix the inadequate allowance for working capital applied in the Bureau's June 30, 2004 TRS rate order. *See Telecommunications Relay Services, DA-04-1999 (June 30, 2004)*. There the Bureau adopted NECA's formulation for applying the rate of return to working capital. *Id.* at para. 16. However,

²⁰ VRS, as a computer based relay system, requires considerable software usage. For example, video software is necessary to provide the minimal visual quality needed to effectively read sign language (especially fingerspelling) in a fluid manner that is consistent with verbal communication that hearing consumers require using their public phone systems. The picture quality is also essential to reduce the eye strain and the ergonomic effects of video interpreting as a occupation for sign language interpreters.

NECA's method of applying the rate of return to working capital is erroneous. NECA proposed and the Bureau approved applying the rate of return by applying one-twelfth of 11.25, plus a 40 percent tax allowance times one month's VRS billings. *Id.* NECA rationalized the one-twelfth figure on the basis that it will pay providers at the end of the month following the end of the month when service is provided. This approach assumes, however, that providers' working capital needs are for a one month period, i.e., from the end of the month in which service is provided until the end of the next month, one month. That assumption is plainly incorrect.

The problem with NECA's approach that the Bureau adopted, is that providers incur costs starting at the beginning of the month in which service is provided, and continuing throughout that month, then providers have the carrying costs of that working capital until payment from the TRS Fund. The D.C. Circuit has explained this process precisely:

A utility's actual need for working capital can be most accurately determined by performing a lead-lag study of the average number of days that passes between payment of expenses and receipt of revenues for a given service. One part of this calculation is the "revenue lag" – the number of days between the time expenses are incurred for services and the date of billing for those services – and the "payment lag" – the number of days between billing and payment. A utility also experiences "lead time" when it received payment for services before it pays the expenses associated with those services. The number of lag days minus the number of lead days yield a net lag which represents the utility's actual needs for working capital.

Boroughs of Ellwood City, Grove City, New Wilmington, Wampum, and Zelienople v. FERC, 731 F.2d 959, 963 (1984) (footnotes and citations omitted).

The exact way providers incur these costs obviously varies, and NECA failed to seek this information through a "lag-lead" study as required by FCC Rule §65.820(e). However, what is clear is that NECA omitted entirely to consider the "revenue lag" portion of working capital. Making the very reasonable assumption that the bulk of providers' costs are labor costs and that most providers

pay their employees approximately semi-monthly, then two very important conclusions are apparent. First, TRS providers have little if any “lead time,” that is receive payments prior to paying expenses. And Second, TRS providers’ “revenue lag” is significant. It is plainly obvious then that the method currently in use undercounts the working capital needs of providers.

Assuming providers pay their employees bi-weekly, semi-monthly or weekly, it leads to the conclusion that a 45 day working capital assumption, rather than 30 days, is most appropriate. since NECA itself has urged this Commission to adopt up to a 45 day working capital assumption for small telephone companies. See NECA Comments in Docket 02-313 and 02-390 on FCC Rule §65.820. This 45 day rule appears to be well established in utility regulation. See *Public Service of New Mexico v. FERC*, 832 F.2d at 1220. Since the working capital methodology now in use fails to recognize the significant costs incurred by providers prior to billing the TRS Fund, the Commission should modify that methodology and adopt a 45 day working capital assumption.

G. The determination of a rate for functional equivalent VRS requires the collection of data concerning projected grade of service.

As discussed above, in fashioning an appropriate VRS rate, it is necessary to consider the grade of service (i.e., answer speed) proposed by the various providers. This is because if some providers cost for a very poor service grade while others cost for a more reasonable service grade, then the provider(s) costing for a poor service grade will be overcompensated, while the provider(s) costing for a better service grade will be unable to deliver the level of service contemplated, thereby risking interpreter’s health and safety, or will have to cut other VRS expenses, thereby degrading service in some other respect. Therefore, Hands On suggests that the Commission should require the administrator to collect data concerning projected answer speeds and method of determining

projected answer speeds, at least until the Commission has in effect a VRS answer speed requirement, and that the administrator be authorized to modify, correct or reject data from providers proposing answer speeds outside the norm.

IX. The TRS Advisory Council should serve as resource to both NECA and the Commission on relay matters.

The Commission seeks comment on the role and composition of the TRS Advisory Council. *FNPRM* at para. 251-54, including whether its membership should be expanded or whether the Council is no longer necessary. The *FNPRM* points out that the Council's mission is to advise NECA on TRS cost recovery issues. *Id.* at para. 252.

Hands On representatives have had the opportunity to attend several TRS Advisory Council meetings and to discuss issues with its various members. In Hands On's view the Council is a valuable resource that is underutilized. It is underutilized because its function is limited to advising NECA on cost recovery matters. Its role should be expanded to include advising the FCC and NECA on all aspects of TRS.

For example, the TRS advisory council should be responsible for advising the Commission on what the minimum standards should be for all TRS services, including ,STS, ,IP relay and VRS. In regard to VRS this would include minimal standards for such things as the appropriate number of frames per second of the video picture, platform accessibility (i.e., Microsoft Window, MacIntosh, video phones, etc.), safe utilization rates for interpreters. The Council would also gather factual information from expert groups that have input, like National Association for the Deaf, Telecommunications for the Deaf, Inc., Association of Late Deafened Adults, Selp Help for Hard of Hearing People, Registry of Interpreters for the Deaf, etc. The council would gather the information

and base its recommendations on what is reasonable to provide functional equivalency to the telecommunications services hearing people receive.

The Council is a unique body with members drawn from diverse sources, carriers, TRS providers, the deaf, hard of hearing and speech and speech disabled communities, local exchange carriers, state TRS administrators and state public utility commissions. Contrary to the suggestion of the *FNPRM*, the inclusion of carriers in the Council ensures that the ratepayers into the TRS Fund are represented. *See FNPRM* at para. 253. In any event, whether the membership is expanded, or not, the Commission should make use of the unique and diverse expertise of the Council in such matters as determining minimum mandatory standards, reasonableness of TRS cost items, prevention of fraud and abuse of the TRS system, and other major policy issues that arise with respect to the TRS program. This should be done by the Commission encouraging the Council to expand its meetings to four times a year, by the Commission inviting the Council to study and report to it and NECA on major TRS policy issues, and by close consultation between the Council and the Commission's DRO.²¹

²¹ We emphasize that such consultation must be on the record and subject to disclosure under the ex parte rules, just as we emphasize that discussions between the FCC and NECA with respect to TRS must be subject to ex parte disclosure, a matter we fear is not always happening. Hands On does not believe there is any issue with respect to the Federal Advisory Committee Act, Pub. L. 92-463 (Oct. 6, 1972), 86 Stat. 770, as amended, of the TRS Advisory Council directly advising the FCC as well as NECA, since the Council is a creation of NECA's not the Commission. However, even if the Council would be subject to the advisory committee act, it can fully meet that Act's requirements with minimal effort. The Council currently has a diverse makeup, and its meetings are public.

X. Conclusion.

As shown above, the Commission should treat all Internet relay services as interstate. Proposals to allocate so-called intrastate Internet relay calls for state payment are problematic in their application and ignore the predominate interstate nature of Internet relay. In addition, the Commission should act on its pending proposal to adopt a certification process for the provision of Interstate relay service by either adopting a federal certification process or by confirming that no federal or state certification is required under the rules for an entity operating with Rule §63.01 common carrier authority to provide TRS service pursuant to FCC Rule §64.604.

Adoption of a speed of answer requirement is critical to ensuring that deaf, hard of hearing and speech disabled persons are afforded functionally equivalent relay service. Adoption of a reasonable and phased in requirement will not appreciably increase the cost of VRS service, but will help ensure deaf, hard of hearing and speech disabled persons equivalent access to the telecommunications network now enjoyed by hearing persons. Congress plainly stated its intention that blocking rates for relay service be equivalent to blocking rates for the telephone network in general. Lack of an answer speed criterion is frustrating Congress's intent and preventing equal access to the network by deaf, hard of hearing and speech disabled persons. Likewise, functional equivalence requires that VRS be made mandatory and offered on a 24 hour basis. The number of interpreters necessary to provide the service on a 24 hour basis is minimal as is the marginal cost of extending service on a 24 hour basis.

Rules to protect video interpreters and other communications assistants from abuse are also warranted. The most important of such rules would set a guideline of average video interpreter

utilization of 38 to 43 percent. This is necessary to prevent video interpreters from going beyond the recommended limit of 50 percent utilization on an hourly basis. Higher utilization times risk reduced communications effectiveness, mental physical and visual fatigue, and repetitive motion injury. Additionally, clarification is necessary concerning when communications assistants and video interpreters may terminate calls that are obscene or harassing. Such calls should be terminable when directed at communications assistants or unwilling third parties. However, the Commission should clarify that consensual calls, even though offensive to the communications assistant must still be handled. The Commission should also relax the rule requiring communications assistants to stay with a call for a minimum of 10 minutes in situations where specialized interpreting skills are warranted or in situations where the interpreter may be embarrassed or humiliated by a sexually explicit call.

The Commission should decline to adopt separate rates for IP Relay and traditional relay calls. Although there may be both costs savings and increased costs between IP Relay and traditional relay calls, the differences do not appear substantial enough to justify setting separate rates for the two closely related services. With respect to VRS cost recovery, the Commission should adopt the per minute rate methodology used for all other relay services. Rates should continue to be set on a year by year basis, but the Commission must be mindful not to make changes in the rate on short notice. The VRS rate should be based on a standard of reasonableness, including reasonable costs to meet waived standards, and not limited to the provision of minimal service limited to mandatory minimum standards, especially where many essential aspects of VRS service lack any standards at all. In fashioning the VRS rate, the Commission must ensure that it compares apples to apples. Thus, it should require the TRS administrator to collect information on targeted answer speeds, and

to adjust provider costs reflective of outlier answer speed targets. In addition, if the Commission retains the 11.25 rate of return on investment only method rather than affording providers a profit margin on their expenses, the Commission should correct the existing flawed working capital assumption of 30 days, and substitute a 45 day working capital assumption.

Finally, the Commission should expand the role of the TRS Advisory Council and both seek and accept input on all TRS matters from an entity with a diverse, unique and particularized knowledge of relay issues.

Adoption of these recommendations will advance the goal of Section 225 of the Act to provide deaf, hard of hearing and speech disabled persons, functionally equivalent telephone service.

Respectfully submitted,
HANDS ON VIDEO RELAY SERVICES, INC.

By _____ /s/ _____
George L. Lyon, Jr.
Its Counsel

Lukas, Nace, Gutierrez & Sachs, Chartered
1650 Tysons Blvd., Suite 1500
McLean, Virginia 22102
(703) 584-8664
October 15, 2004

Certificate of Service

I, David Crawford, do hereby certify that copies of the foregoing Petition for Reconsideration were sent on this 15th day of October 2004, via first-class mail, except where noted, postage pre-paid, to the following:

Michael B. Fingerhut, Esq.
Sprint Corporation
401 9 Street, N.W., Suite 400
Washington, D.C. 20004

Peter H. Jacoby, Esq.
AT&T Corp.
1120 20th Street, NW, Suite 1000
Washington, DC 20036

Karen Peltz-Strauss, Esq.
KPS Consulting
3508 Albermarle St.
Washington, DC 20008

Nancy J. Bloch
Executive Director
National Association of the Deaf
814 Thayer Avenue
Silver Spring, MD 20910-4500

David O'Connor, Esq.
Counsel for Hamilton Relay
Holland & Knight LLP
2099 Pennsylvania Ave., NW, Suite 100
Washington, DC 20006

Mr. Thomas Chandler, Esq.
Consumer and Governmental Affairs Bureau
Federal Communications Commission
445 12th Street, SW
Rm: 6-C415
Washington, DC 20554

Beth Wilson, Ph.D. Executive Director,
SHHH
401 9 Street, N.W., Suite 400
Washington, D.C. 20004

Larry Fenster, Esq.
MCI
1133 19th Street, NW
Washington, DC 20336

Claude Stout
Executive Director
Telecommunications for the Deaf, Inc.
8630 Fenton Street, Suite 604
Silver Spring, MD 20910-3803

Ms. Cheryl King
Consumer and Governmental Affairs Bureau
Federal Communications Commission
445 12th Street, SW
Washington, DC 20554

John Archer, Esq.
Hagan Wilka & Archer, P.C.
Suite 418
100 S. Phillips Avenue
Sioux Falls, SD 57105

Kelby Brick, Chair
Deaf and Hard of Hearing
Consumer Advocacy Network
814 Thayer Avenue
Silver Spring, MD 209 10-4500

Julie Miron
Communications Access Center
1631 Miller Road
Flint, Michigan 48503

/s/

David Crawford

Exhibit 1

Hourly segment	Number calls	Agents 85/5		Agents 85/30		Agents 85/60		Agents 85/120		Agents 85/300	
		Utilization	Utilization	Utilization	Utilization	Utilization	Utilization	Utilization	Utilization	Utilization	
1	10	3	27.78%	3	27.78%	3	27.78%	3	27.78%	3	27.78%
2	15	4	31.25%	4	31.25%	4	31.25%	4	31.25%	3	41.67%
3	20	5	33.33%	5	33.33%	5	33.33%	4	41.67%	4	41.67%
4	25	6	34.72%	5	41.67%	5	41.67%	5	41.67%	4	52.08%
5	30	6	41.67%	6	41.67%	6	41.67%	6	41.67%	5	50.00%
6	25	6	34.72%	5	41.67%	5	41.67%	5	41.67%	4	52.08%
7	20	5	33.33%	5	33.33%	5	33.33%	4	41.67%	4	41.67%
8	10	3	27.78%	3	27.78%	3	27.78%	3	27.78%	3	27.78%
Total	155	38	33.99%	36	35.88%	36	35.88%	34	37.99%	30	43.06%
Total agent shifts		4.75		4.50		4.50		4.25		3.75	



The world's first online Erlang traffic calculators

[Home](#) | [Free calculators](#) | [Products](#) | [Tech. papers](#) | [Forum](#) | [About us](#)

**Online
Traffic
Calculators**

**How many agents do I need? 45 seconds wrap-up time
3 minute call duration 80% of calls answered in 15 seconds
1% blocking How many lines do I need into my call center?**

**Calculator menu Call Center Calculator (Ansapoint)
Calculator index**

- Erlang B**
- VoIP bandwidth**
- Call center**
- Call minutes
- Erlangs to VoIP
- Ext. Erlang B
- Erlang C
- Engset

Site highlights

- Home page**
- Online Calculators
- Products
- Erlang for Excel™
- Forum
- Technical papers
- What is an Erlang?
- Contact us

**Internet
Telephony**

We now offer high quality, low cost Internet Telephony.

Instant sign up and online account management. A-Z Wholesale services also available.

[Click here for info](#)

**Computer
TELEPHONY**
Highly recommended!

Free newsletter

Brief instructions

Here is a brief introduction to the calculator. For more detailed information, press the *Help* Button which opens a new browser window on your desktop.

- This calculator, which is based on the Erlang B and Erlang C traffic models, helps you

Call Centre Calculator ✖

Targets and assumptions

Average call duration (s)	320	
Average wrap up time (s)	60	
Call answering target	85	% answered in
	5	seconds
Trunk blocking target	0.010	

Hourly calls and results (Enter number into calls column and click mouse out of box)

Hour	Calls	Avg. delay	Agents	Lines
Hour 1	10	21	3	5
Hour 2	15	14	4	6
Hour 3	20	10	5	6
Hour 4	25	7	6	7
Hour 5	30	17	6	8
Hour 6	25	7	6	7
Hour 7	20	10	5	6
Hour 8	10	21	3	5

Results summary

Peak hour	Hour 5
Maximum agents required	6
Lines required	8

Calculate
Help



The world's first online Erlang traffic calculators

The world's first online Erlang traffic calculators

Home | Free calculators | Products | Tech. papers | Forum | About us

Online

Traffic

Calculators

How many agents do I need? 45 seconds wrap-up time
3 minute call duration 80% of calls answered in 15 seconds
1% blocking How many lines do I need into my call center?

Calculator menu Call Center Calculator (Ansapoint)
Calculator index

- Erlang B
- VoIP bandwidth
- Call center
- Call minutes
- Erlangs to VoIP
- Ext. Erlang B
- Erlang C
- Engset

Site highlights

- Home page
- Online Calculators
- Products
- Erlang for Excel™
- Forum
- Technical papers
- What is an Erlang?
- Contact us

Internet Telephony

We now offer high quality, low cost Internet Telephony.

Instant sign up and online account management. A-Z Wholesale services also available.

[Click here for info](#)



Free newsletter

Brief instructions

Here is a brief introduction to the calculator. For more detailed information, press the *Help* Button which opens a new browser window on your desktop.

- This calculator, which is based on the Erlang B and Erlang C traffic models, helps you

Call Centre Calculator ✖

Targets and assumptions

Average call duration (s)

Average wrap up time (s)

Call answering target % answered in
 seconds

Trunk blocking target

Hourly calls and results (Enter number into calls column and click mouse out of box)

Hour	Calls	Avg. delay	Agents	Lines
Hour 1	<input type="text" value="10"/>	<input type="text" value="21"/>	<input type="text" value="3"/>	<input type="text" value="5"/>
Hour 2	<input type="text" value="15"/>	<input type="text" value="14"/>	<input type="text" value="4"/>	<input type="text" value="6"/>
Hour 3	<input type="text" value="20"/>	<input type="text" value="10"/>	<input type="text" value="5"/>	<input type="text" value="6"/>
Hour 4	<input type="text" value="25"/>	<input type="text" value="26"/>	<input type="text" value="5"/>	<input type="text" value="7"/>
Hour 5	<input type="text" value="30"/>	<input type="text" value="17"/>	<input type="text" value="6"/>	<input type="text" value="8"/>
Hour 6	<input type="text" value="25"/>	<input type="text" value="26"/>	<input type="text" value="5"/>	<input type="text" value="7"/>
Hour 7	<input type="text" value="20"/>	<input type="text" value="10"/>	<input type="text" value="5"/>	<input type="text" value="6"/>
Hour 8	<input type="text" value="10"/>	<input type="text" value="21"/>	<input type="text" value="3"/>	<input type="text" value="5"/>

Results summary

Peak hour

Maximum agents required

Lines required



The world's first online Erlang traffic calculators

[Home](#) | [Free calculators](#) | [Products](#) | [Tech. papers](#) | [Forum](#) | [About us](#)

**Online
Traffic
Calculators**

How many agents do I need? 45 seconds wrap-up time
3 minute call duration 80% of calls answered in 15 seconds
1% blocking How many lines do I need into my call center?

Calculator menu Call Center Calculator (Ansapoint)
Calculator index

- Erlang B**
- VoIP bandwidth**
- Call center**
- Call minutes
- Erlangs to VoIP
- Ext. Erlang B
- Erlang C
- Engset

Site highlights

- Home page**
- Online Calculators
- Products
- Erlang for Excel™
- Forum
- Technical papers
- What is an Erlang?
- Contact us

**Internet
Telephony**

We now offer high quality, low cost Internet Telephony.

Instant sign up and online account management. A-Z Wholesale services also available.

[Click here for info](#)

**Computer
TELEPHONY**
Highly recommended!

Free newsletter

Call Centre Calculator ✖

Targets and assumptions

Average call duration (s)

Average wrap up time (s)

Call answering target % answered in seconds

Trunk blocking target

Hourly calls and results (Enter number into calls column and click mouse out of box)

Hour	Calls	Avg. delay	Agents	Lines
Hour 1	<input type="text" value="10"/>	<input type="text" value="21"/>	<input type="text" value="3"/>	<input type="text" value="5"/>
Hour 2	<input type="text" value="15"/>	<input type="text" value="14"/>	<input type="text" value="4"/>	<input type="text" value="6"/>
Hour 3	<input type="text" value="20"/>	<input type="text" value="10"/>	<input type="text" value="5"/>	<input type="text" value="6"/>
Hour 4	<input type="text" value="25"/>	<input type="text" value="26"/>	<input type="text" value="5"/>	<input type="text" value="7"/>
Hour 5	<input type="text" value="30"/>	<input type="text" value="17"/>	<input type="text" value="6"/>	<input type="text" value="8"/>
Hour 6	<input type="text" value="25"/>	<input type="text" value="26"/>	<input type="text" value="5"/>	<input type="text" value="7"/>
Hour 7	<input type="text" value="20"/>	<input type="text" value="10"/>	<input type="text" value="5"/>	<input type="text" value="6"/>
Hour 8	<input type="text" value="10"/>	<input type="text" value="21"/>	<input type="text" value="3"/>	<input type="text" value="5"/>

Results summary

Peak hour

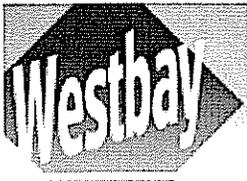
Maximum agents required

Lines required

Brief instructions

Here is a brief introduction to the calculator. For more detailed information, press the *Help* Button which opens a new browser window on your desktop.

- This calculator, which is based on the Erlang B and Erlang C traffic models, helps you



The world's first online Erlang traffic calculators

[Home](#) | [Free calculators](#) | [Products](#) | [Tech. papers](#) | [Forum](#) | [About us](#)

**Online
Traffic
Calculators**

How many agents do I need? 45 seconds wrap-up time
3 minute call duration 80% of calls answered in 15 seconds
1% blocking How many lines do I need into my call center?

Calculator menu Call Center Calculator (Ansapoint)

- Calculator index
- Erlang B
- VoIP bandwidth
- Call center
- Call minutes
- Erlangs to VoIP
- Ext. Erlang B
- Erlang C
- Engset

Site highlights

- Home page
- Online Calculators
- Products
- Erlang for Excel™
- Forum
- Technical papers
- What is an Erlang?
- Contact us

**Internet
Telephony**

We now offer high quality, low cost Internet Telephony.

Instant sign up and online account management. A-Z Wholesale services also available.

[Click here for info](#)



Brief instructions

Here is a brief introduction to the calculator. For more detailed information, press the *Help* Button which opens a new browser window on your desktop.

Free newsletter

- This calculator, which is based on the Erlang B and Erlang C traffic models, helps you

Call Centre Calculator ✖

Targets and assumptions

Average call duration (s)

Average wrap up time (s)

Call answering target % answered in seconds

Trunk blocking target

Hourly calls and results (Enter number into calls column and click mouse out of box)

Hour	Calls	Avg. delay	Agents	Lines
Hour 1	<input type="text" value="10"/>	<input type="text" value="21"/>	<input type="text" value="3"/>	<input type="text" value="5"/>
Hour 2	<input type="text" value="15"/>	<input type="text" value="14"/>	<input type="text" value="4"/>	<input type="text" value="6"/>
Hour 3	<input type="text" value="20"/>	<input type="text" value="41"/>	<input type="text" value="4"/>	<input type="text" value="7"/>
Hour 4	<input type="text" value="25"/>	<input type="text" value="26"/>	<input type="text" value="5"/>	<input type="text" value="7"/>
Hour 5	<input type="text" value="30"/>	<input type="text" value="17"/>	<input type="text" value="6"/>	<input type="text" value="8"/>
Hour 6	<input type="text" value="25"/>	<input type="text" value="26"/>	<input type="text" value="5"/>	<input type="text" value="7"/>
Hour 7	<input type="text" value="20"/>	<input type="text" value="41"/>	<input type="text" value="4"/>	<input type="text" value="7"/>
Hour 8	<input type="text" value="10"/>	<input type="text" value="21"/>	<input type="text" value="3"/>	<input type="text" value="5"/>

Results summary

Peak hour

Maximum agents required

Lines required



The world's first online Erlang traffic calculators

[Home](#) | [Free calculators](#) | [Products](#) | [Tech. papers](#) | [Forum](#) | [About us](#)

**Online
Traffic
Calculators**

How many agents do I need? 45 seconds wrap-up time
3 minute call duration 80% of calls answered in 15 seconds
1% blocking How many lines do I need into my call center?

Calculator menu Call Center Calculator (Ansapoint)
Calculator index

- Erlang B
- VoIP bandwidth
- Call center
- Call minutes
- Erlangs to VoIP
- Ext. Erlang B
- Erlang C
- Engset

Site highlights

- Home page
- Online Calculators
- Products
- Erlang for Excel™
- Forum
- Technical papers
- What is an Erlang?
- Contact us

**Internet
Telephony**

We now offer high quality, low cost Internet Telephony.

Instant sign up and online account management. A-Z Wholesale services also available.

[Click here for info](#)



Brief instructions

Here is a brief introduction to the calculator. For more detailed information, press the *Help* Button which opens a new browser window on your desktop.

Free newsletter

- This calculator, which is based on the Erlang B and Erlang C traffic models, helps you

Call Centre Calculator ✖

Targets and assumptions

Average call duration (s)

Average wrap up time (s)

Call answering target % answered in seconds

Trunk blocking target

Hourly calls and results (Enter number into calls column and click mouse out of box)

Hour	Calls	Avg. delay	Agents	Lines
Hour 1	<input type="text" value="10"/>	<input type="text" value="21"/>	<input type="text" value="3"/>	<input type="text" value="5"/>
Hour 2	<input type="text" value="15"/>	<input type="text" value="72"/>	<input type="text" value="3"/>	<input type="text" value="6"/>
Hour 3	<input type="text" value="20"/>	<input type="text" value="41"/>	<input type="text" value="4"/>	<input type="text" value="7"/>
Hour 4	<input type="text" value="25"/>	<input type="text" value="103"/>	<input type="text" value="4"/>	<input type="text" value="8"/>
Hour 5	<input type="text" value="30"/>	<input type="text" value="58"/>	<input type="text" value="5"/>	<input type="text" value="9"/>
Hour 6	<input type="text" value="25"/>	<input type="text" value="103"/>	<input type="text" value="4"/>	<input type="text" value="8"/>
Hour 7	<input type="text" value="20"/>	<input type="text" value="41"/>	<input type="text" value="4"/>	<input type="text" value="7"/>
Hour 8	<input type="text" value="10"/>	<input type="text" value="21"/>	<input type="text" value="3"/>	<input type="text" value="5"/>

Results summary

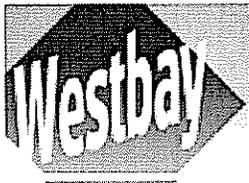
Peak hour

Maximum agents required

Lines required

Exhibit 2

Hourly segment	Total			Agents Adt.			Agents Adt.			Agents Adt.			Agents Adt.			Agents Adt.					
	Calls	minutes		85/5	Agts	Util.	85/10	Agts	Util.	85/30	Agts	Util.	85/60	Agts	Util.	85/120	Agts	Util.	85/300	Agts	Util.
1	23	145.59		5	5.0	48.53%	5	5.0	48.53%	5	5.0	48.53%	5	5.0	48.53%	5	5.0	48.53%	4	5.0	60.66%
2	20	126.6		5	5.0	42.20%	5	5.0	42.20%	5	5.0	42.20%	5	5.0	42.20%	4	5.0	52.75%	4	5.0	52.75%
3	40	253.2		8	9.0	52.75%	8	9.0	52.75%	7	9.0	60.29%	7	9.0	60.29%	7	9.0	60.29%	6	9.0	70.33%
4	54	341.82		9	12.0	63.30%	9	12.0	63.30%	9	12.0	63.30%	9	12.0	63.30%	8	12.0	71.21%	8	12.0	71.21%
5	64	405.12		11	14.0	61.38%	11	14.0	61.38%	10	14.0	67.52%	10	14.0	67.52%	10	14.0	67.52%	9	14.0	75.02%
6	69	436.77		11	15.0	66.18%	11	15.0	66.18%	11	15.0	66.18%	11	15.0	66.18%	10	15.0	72.80%	10	15.0	72.80%
7	64	405.12		11	14.0	61.38%	11	14.0	61.38%	10	14.0	67.52%	10	14.0	67.52%	10	14.0	67.52%	9	14.0	75.02%
8	73	462.09		12	16.0	64.18%	12	16.0	64.18%	12	16.0	64.18%	11	16.0	70.01%	11	16.0	70.01%	10	16.0	77.02%
Total	407	2576.31		72	90.0	59.64%	72	90.0	59.64%	69	90.0	62.23%	68	90.0	63.14%	65	90	66.06%	60	90	7.95%
Total agent shifts				9	57.73%		9	57.73%	8.625	60.22%		8.5	60.97%	8.125	64.08%		7.5	62.53%			
Adjusted agent shifts					11.3 47.71%			11.3 0.25%		11.3 47.71%			11.3 47.71%		11 47.71%			11 47.71%			



The world's first online Erlang traffic calculators

[Home](#) | [Free calculators](#) | [Products](#) | [Tech. papers](#) | [Forum](#) | [About us](#)

Online
Traffic
Calculators

How many agents do I need? 45 seconds wrap-up time
3 minute call duration 80% of calls answered in 15 seconds
1% blocking How many lines do I need into my call center?

Calculator menu **Call Center Calculator (Ansapoint)**
Calculator index

Erlang B
VoIP bandwidth
Call center
Call minutes
Erlangs to VoIP
Ext. Erlang B
Erlang C
Engset

Site highlights
Home page
Online Calculators
Products
Erlang for Excel™
Forum
Technical papers
What is an Erlang?
Contact us

Internet Telephony
We now offer high quality, low cost Internet Telephony.

Instant sign up and online account management. A-Z Wholesale services also available.

[Click here for info](#)

Computer TELEPHONY
Highly recommended!

Free newsletter

Call Centre Calculator ✖

Targets and assumptions

Average call duration (s)

Average wrap up time (s)

Call answering target % answered in seconds

Trunk blocking target

Hourly calls and results (Enter number into calls column and click mouse out of box)

Hour	Calls	Avg. delay	Agents	Lines
Hour 1	<input type="text" value="23"/>	<input type="text" value="18"/>	<input type="text" value="5"/>	<input type="text" value="7"/>
Hour 2	<input type="text" value="20"/>	<input type="text" value="10"/>	<input type="text" value="5"/>	<input type="text" value="6"/>
Hour 3	<input type="text" value="40"/>	<input type="text" value="8"/>	<input type="text" value="8"/>	<input type="text" value="9"/>
Hour 4	<input type="text" value="54"/>	<input type="text" value="18"/>	<input type="text" value="9"/>	<input type="text" value="11"/>
Hour 5	<input type="text" value="64"/>	<input type="text" value="9"/>	<input type="text" value="11"/>	<input type="text" value="12"/>
Hour 6	<input type="text" value="69"/>	<input type="text" value="16"/>	<input type="text" value="11"/>	<input type="text" value="13"/>
Hour 7	<input type="text" value="64"/>	<input type="text" value="9"/>	<input type="text" value="11"/>	<input type="text" value="12"/>
Hour 8	<input type="text" value="73"/>	<input type="text" value="10"/>	<input type="text" value="12"/>	<input type="text" value="14"/>

Results summary

Peak hour

Maximum agents required

Lines required

Brief instructions

Here is a brief introduction to the calculator. For more detailed information, press the *Help* Button which opens a new browser window on your desktop.

- This calculator, which is based on the Erlang B and Erlang C traffic models, helps you



The world's first online Erlang traffic calculators

[Home](#) | [Free calculators](#) | [Products](#) | [Tech. papers](#) | [Forum](#) | [About us](#)

Online
Traffic
Calculators

How many agents do I need? 45 seconds wrap-up time
3 minute call duration 80% of calls answered in 15 seconds
1% blocking How many lines do I need into my call center?

Calculator menu **Call Center Calculator (Ansapoint)**
Calculator index

- Erlang B
- VoIP bandwidth
- Call center
- Call minutes
- Erlangs to VoIP
- Ext. Erlang B
- Erlang C
- Engset

Site highlights

- Home page
- Online Calculators
- Products
- Erlang for Excel™
- Forum
- Technical papers
- What is an Erlang?
- Contact us

Internet
Telephony

We now offer high quality, low cost Internet Telephony.

Instant sign up and online account management. A-Z Wholesale services also available.

[Click here for info](#)



Free newsletter

Call Centre Calculator ✖

Targets and assumptions

Average call duration (s)

Average wrap up time (s)

Call answering target % answered in seconds

Trunk blocking target

Hourly calls and results (Enter number into calls column and click mouse out of box)

Hour	Calls	Avg. delay	Agents	Lines
Hour 1	<input type="text" value="23"/>	<input type="text" value="18"/>	<input type="text" value="5"/>	<input type="text" value="7"/>
Hour 2	<input type="text" value="20"/>	<input type="text" value="10"/>	<input type="text" value="5"/>	<input type="text" value="6"/>
Hour 3	<input type="text" value="40"/>	<input type="text" value="8"/>	<input type="text" value="8"/>	<input type="text" value="9"/>
Hour 4	<input type="text" value="54"/>	<input type="text" value="18"/>	<input type="text" value="9"/>	<input type="text" value="11"/>
Hour 5	<input type="text" value="64"/>	<input type="text" value="9"/>	<input type="text" value="11"/>	<input type="text" value="12"/>
Hour 6	<input type="text" value="69"/>	<input type="text" value="16"/>	<input type="text" value="11"/>	<input type="text" value="13"/>
Hour 7	<input type="text" value="64"/>	<input type="text" value="9"/>	<input type="text" value="11"/>	<input type="text" value="12"/>
Hour 8	<input type="text" value="73"/>	<input type="text" value="10"/>	<input type="text" value="12"/>	<input type="text" value="14"/>

Results summary

Peak hour

Maximum agents required

Lines required

Brief instructions

Here is a brief introduction to the calculator. For more detailed information, press the *Help* Button which opens a new browser window on your desktop.

- This calculator, which is based on the Erlang B and Erlang C traffic models, helps you



Westbay Erlang Traffic Calculators

The world's first online Erlang traffic calculators

[Home](#) | [Free calculators](#) | [Products](#) | [Tech. papers](#) | [Forum](#) | [About us](#)

Online
Traffic
Calculators

How many agents do I need? 45 seconds wrap-up time
3 minute call duration 80% of calls answered in 15 seconds
1% blocking How many lines do I need into my call center?

Calculator menu **Call Center Calculator (Ansapoint)**
Calculator index

Erlang B
VoIP bandwidth
Call center
Call minutes
Erlangs to VoIP
Ext. Erlang B
Erlang C
Engset

Site highlights

Home page
Online Calculators
Products
Erlang for Excel™
Forum
Technical papers
What is an Erlang?
Contact us

Internet Telephony

We now offer high quality, low cost Internet Telephony.

Instant sign up and online account management. A-Z Wholesale services also available.

[Click here for info](#)



Brief instructions

Here is a brief introduction to the calculator. For more detailed information, press the *Help* Button which opens a new browser window on your desktop.

Free newsletter

- This calculator, which is based on the Erlang B and Erlang C traffic models, helps you

Call Centre Calculator ✖

Targets and assumptions

Average call duration (s)

Average wrap up time (s)

Call answering target % answered in seconds

Trunk blocking target

Hourly calls and results (Enter number into calls column and click mouse out of box)

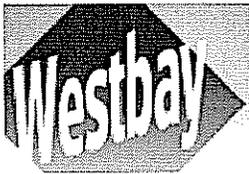
Hour	Calls	Avg. delay	Agents	Lines
Hour 1	<input type="text" value="23"/>	<input type="text" value="18"/>	<input type="text" value="5"/>	<input type="text" value="7"/>
Hour 2	<input type="text" value="20"/>	<input type="text" value="10"/>	<input type="text" value="5"/>	<input type="text" value="6"/>
Hour 3	<input type="text" value="40"/>	<input type="text" value="24"/>	<input type="text" value="7"/>	<input type="text" value="10"/>
Hour 4	<input type="text" value="54"/>	<input type="text" value="18"/>	<input type="text" value="9"/>	<input type="text" value="11"/>
Hour 5	<input type="text" value="64"/>	<input type="text" value="22"/>	<input type="text" value="10"/>	<input type="text" value="13"/>
Hour 6	<input type="text" value="69"/>	<input type="text" value="16"/>	<input type="text" value="11"/>	<input type="text" value="13"/>
Hour 7	<input type="text" value="64"/>	<input type="text" value="22"/>	<input type="text" value="10"/>	<input type="text" value="13"/>
Hour 8	<input type="text" value="73"/>	<input type="text" value="10"/>	<input type="text" value="12"/>	<input type="text" value="14"/>

Results summary

Peak hour

Maximum agents required

Lines required



Westbay Engineering Limited
The world's first online Erlang traffic calculators

[Home](#) | [Free calculators](#) | [Products](#) | [Tech. papers](#) | [Forum](#) | [About us](#)

Online
Traffic
Calculators

How many agents do I need? 45 seconds wrap-up time
3 minute call duration 80% of calls answered in 15 seconds
1% blocking How many lines do I need into my call center?

Calculator menu **Call Center Calculator (Ansapoint)**
Calculator index

Erlang B
VoIP bandwidth
Call center
Call minutes
Erlangs to VoIP
Ext. Erlang B
Erlang C
Engset

Site highlights

Home page
Online Calculators
Products
Erlang for Excel™
Forum
Technical papers
What is an Erlang?
Contact us

Internet Telephony

We now offer high quality, low cost Internet Telephony.

Instant sign up and online account management. A-Z Wholesale services also available.

[Click here for info](#)

Computer TELEPHONY
Highly recommended!

Free newsletter

Call Centre Calculator ✖

Targets and assumptions

Average call duration (s)

Average wrap up time (s)

Call answering target % answered in seconds

Trunk blocking target

Hourly calls and results (Enter number into calls column and click mouse out of box)

Hour	Calls	Avg. delay	Agents	Lines
Hour 1	<input type="text" value="23"/>	<input type="text" value="18"/>	<input type="text" value="5"/>	<input type="text" value="7"/>
Hour 2	<input type="text" value="20"/>	<input type="text" value="10"/>	<input type="text" value="5"/>	<input type="text" value="6"/>
Hour 3	<input type="text" value="40"/>	<input type="text" value="24"/>	<input type="text" value="7"/>	<input type="text" value="10"/>
Hour 4	<input type="text" value="54"/>	<input type="text" value="18"/>	<input type="text" value="9"/>	<input type="text" value="11"/>
Hour 5	<input type="text" value="64"/>	<input type="text" value="22"/>	<input type="text" value="10"/>	<input type="text" value="13"/>
Hour 6	<input type="text" value="69"/>	<input type="text" value="16"/>	<input type="text" value="11"/>	<input type="text" value="13"/>
Hour 7	<input type="text" value="64"/>	<input type="text" value="22"/>	<input type="text" value="10"/>	<input type="text" value="13"/>
Hour 8	<input type="text" value="73"/>	<input type="text" value="24"/>	<input type="text" value="11"/>	<input type="text" value="14"/>

Results summary

Peak hour

Maximum agents required

Lines required

Brief instructions

Here is a brief introduction to the calculator. For more detailed information, press the *Help* Button which opens a new browser window on your desktop.

- This calculator, which is based on the Erlang B and Erlang C. traffic models, helps you



Westbay Engineering Limited

The world's first online Erlang traffic calculators

[Home](#) | [Free calculators](#) | [Products](#) | [Tech. papers](#) | [Forum](#) | [About us](#)

Online
Traffic
Calculators

How many agents do I need? 45 seconds wrap-up time
3 minute call duration 80% of calls answered in 15 seconds
1% blocking How many lines do I need into my call center?

Calculator menu **Call Center Calculator (Ansapoint)**
Calculator index

Erlang B
VoIP bandwidth
Call center
Call minutes
Erlangs to VoIP
Ext. Erlang B
Erlang C
Engset

Site highlights

Home page

Online Calculators
Products
Erlang for Excel™
Forum
Technical papers
What is an Erlang?
Contact us

Internet
Telephony

We now offer high quality, low cost Internet Telephony.

Instant sign up and online account management. A-Z Wholesale services also available.

[Click here for info](#)

Computer
TELEPHONY
Highly recommended!

Free newsletter

Call Centre Calculator ✖

Targets and assumptions

Average call duration (s)

Average wrap up time (s)

Call answering target % answered in seconds

Trunk blocking target

Hourly calls and results (Enter number into calls column and click mouse out of box)

Hour	Calls	Avg. delay	Agents	Lines
Hour 1	<input type="text" value="23"/>	<input type="text" value="18"/>	<input type="text" value="5"/>	<input type="text" value="7"/>
Hour 2	<input type="text" value="20"/>	<input type="text" value="41"/>	<input type="text" value="4"/>	<input type="text" value="7"/>
Hour 3	<input type="text" value="40"/>	<input type="text" value="24"/>	<input type="text" value="7"/>	<input type="text" value="10"/>
Hour 4	<input type="text" value="54"/>	<input type="text" value="49"/>	<input type="text" value="8"/>	<input type="text" value="12"/>
Hour 5	<input type="text" value="64"/>	<input type="text" value="22"/>	<input type="text" value="10"/>	<input type="text" value="13"/>
Hour 6	<input type="text" value="69"/>	<input type="text" value="38"/>	<input type="text" value="10"/>	<input type="text" value="14"/>
Hour 7	<input type="text" value="64"/>	<input type="text" value="22"/>	<input type="text" value="10"/>	<input type="text" value="13"/>
Hour 8	<input type="text" value="73"/>	<input type="text" value="24"/>	<input type="text" value="11"/>	<input type="text" value="14"/>

Results summary

Peak hour

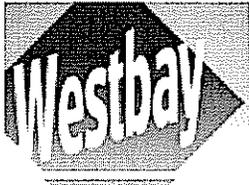
Maximum agents required

Lines required

Brief instructions

Here is a brief introduction to the calculator. For more detailed information, press the *Help* Button which opens a new browser window on your desktop.

- This calculator, which is based on the Erlang B and Erlang C traffic models, helps you



Westbay Erlang Traffic Calculators

The world's first online Erlang traffic calculators

[Home](#) | [Free calculators](#) | [Products](#) | [Tech. papers](#) | [Forum](#) | [About us](#)

Online
Traffic
Calculators

How many agents do I need? 45 seconds wrap-up time
3 minute call duration 80% of calls answered in 15 seconds
1% blocking How many lines do I need into my call center?

Calculator menu **Call Center Calculator (Ansapoint)**
Calculator index

Erlang B
VoIP bandwidth
Call center
Call minutes
Erlangs to VoIP
Ext. Erlang B
Erlang C
Engset

Site highlights

Home page
[Online Calculators](#)
[Products](#)
[Erlang for Excel™](#)
[Forum](#)
[Technical papers](#)
[What is an Erlang?](#)
[Contact us](#)

Internet Telephony

We now offer high quality, low cost Internet Telephony.

Instant sign up and online account management. A-Z Wholesale services also available.

[Click here for info](#)

Computer TELEPHONY
Highly recommended!

Free newsletter

Call Centre Calculator ✖

Targets and assumptions

Average call duration (s)

Average wrap up time (s)

Call answering target % answered in seconds

Trunk blocking target

Hourly calls and results (Enter number into calls column and click mouse out of box)

Hour	Calls	Avg. delay	Agents	Lines
Hour 1	<input type="text" value="23"/>	<input type="text" value="72"/>	<input type="text" value="4"/>	<input type="text" value="8"/>
Hour 2	<input type="text" value="20"/>	<input type="text" value="41"/>	<input type="text" value="4"/>	<input type="text" value="7"/>
Hour 3	<input type="text" value="40"/>	<input type="text" value="74"/>	<input type="text" value="6"/>	<input type="text" value="10"/>
Hour 4	<input type="text" value="54"/>	<input type="text" value="49"/>	<input type="text" value="8"/>	<input type="text" value="12"/>
Hour 5	<input type="text" value="64"/>	<input type="text" value="57"/>	<input type="text" value="9"/>	<input type="text" value="14"/>
Hour 6	<input type="text" value="69"/>	<input type="text" value="38"/>	<input type="text" value="10"/>	<input type="text" value="14"/>
Hour 7	<input type="text" value="64"/>	<input type="text" value="57"/>	<input type="text" value="9"/>	<input type="text" value="14"/>
Hour 8	<input type="text" value="73"/>	<input type="text" value="58"/>	<input type="text" value="10"/>	<input type="text" value="15"/>

Results summary

Peak hour

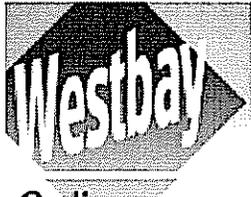
Maximum agents required

Lines required

Brief instructions

Here is a brief introduction to the calculator. For more detailed information, press the *Help* Button which opens a new browser window on your desktop.

- This calculator, which is based on the Erlang B and Erlang C traffic models, helps you



The world's first online Erlang traffic calculators

[Home](#) | [Free calculators](#) | [Products](#) | [Tech. papers](#) | [Forum](#) | [About us](#)

Online
Traffic
Calculators

How many agents do I need? 45 seconds wrap-up time
3 minute call duration 80% of calls answered in 15 seconds
1% blocking How many lines do I need into my call center?

Calculator menu **Call Center Calculator (Ansapoint)**
Calculator index

- Erlang B
- VoIP bandwidth
- Call center
- Call minutes
- Erlangs to VoIP
- Ext. Erlang B
- Erlang C
- Engset

Site highlights

- Home page
- Online Calculators
- Products
- Erlang for Excel™
- Forum
- Technical papers
- What is an Erlang?
- Contact us

Internet
Telephony

We now offer high quality, low cost Internet Telephony.

Instant sign up and online account management. A-Z Wholesale services also available.

[Click here for info](#)

Computer TELEPHONY
Highly recommended!

Free newsletter

Call Centre Calculator ✖

Targets and assumptions

Average call duration (s)

Average wrap up time (s)

Call answering target % answered in seconds

Trunk blocking target

Hourly calls and results (Enter number into calls column) and click mouse out of box)

Hour	Calls	Avg. delay	Agents	Lines
Hour 1	<input type="text" value="23"/>	<input type="text" value="72"/>	<input type="text" value="4"/>	<input type="text" value="8"/>
Hour 2	<input type="text" value="20"/>	<input type="text" value="41"/>	<input type="text" value="4"/>	<input type="text" value="7"/>
Hour 3	<input type="text" value="40"/>	<input type="text" value="74"/>	<input type="text" value="6"/>	<input type="text" value="10"/>
Hour 4	<input type="text" value="54"/>	<input type="text" value="49"/>	<input type="text" value="8"/>	<input type="text" value="12"/>
Hour 5	<input type="text" value="64"/>	<input type="text" value="57"/>	<input type="text" value="9"/>	<input type="text" value="14"/>
Hour 6	<input type="text" value="69"/>	<input type="text" value="101"/>	<input type="text" value="9"/>	<input type="text" value="15"/>
Hour 7	<input type="text" value="64"/>	<input type="text" value="57"/>	<input type="text" value="9"/>	<input type="text" value="14"/>
Hour 8	<input type="text" value="73"/>	<input type="text" value="58"/>	<input type="text" value="10"/>	<input type="text" value="15"/>

Results summary

Peak hour

Maximum agents required

Lines required

Brief instructions

Here is a brief introduction to the calculator. For more detailed information, press the *Help* Button which opens a new browser window on your desktop.

- This calculator, which is based on the Erlang B and Erlang C traffic models, helps you



[Home](#) | [Free calculators](#) | [Products](#)

Exhibit 3

Online
Traffic
Calculators

How many agents do I need? 45 seconds wrap-up time
3 minute call duration 80% of calls answered in 15 seconds
1% blocking How many lines do I need into my call center?

Calculator menu **Call Center Calculator (Ansapoint)** Calculator index

Erlang B
VoIP bandwidth
Call center
Call minutes
Erlangs to VoIP
Ext. Erlang B
Erlang C
Engset

Site highlights

Home page
Online Calculators
Products
Erlang for Excel™
Forum
Technical papers
What is an Erlang?
Contact us

Internet Telephony

We now offer high quality, low cost Internet Telephony.

Instant sign up and online account management. A-Z Wholesale services also available.

[Click here for info](#)



Free newsletter

Brief instructions

Here is a brief introduction to the calculator. For more detailed information, press the *Help* Button which opens a new browser window on your desktop.

- This calculator, which is based on the Erlang B and Erlang C traffic models, helps you

Call Centre Calculator ✖

Targets and assumptions

Average call duration (s)

Average wrap up time (s)

Call answering target % answered in seconds

Trunk blocking target

Hourly calls and results (Enter number into calls column and click mouse out of box)

Hour	Calls	Avg. delay	Agents	Lines
Hour 1	<input type="text" value="56"/>	<input type="text" value="15"/>	<input type="text" value="9"/>	<input type="text" value="11"/>
Hour 2	<input type="text" value="56"/>	<input type="text" value="15"/>	<input type="text" value="9"/>	<input type="text" value="11"/>
Hour 3	<input type="text" value="56"/>	<input type="text" value="15"/>	<input type="text" value="9"/>	<input type="text" value="11"/>
Hour 4	<input type="text" value="56"/>	<input type="text" value="15"/>	<input type="text" value="9"/>	<input type="text" value="11"/>
Hour 5	<input type="text" value="56"/>	<input type="text" value="15"/>	<input type="text" value="9"/>	<input type="text" value="11"/>
Hour 6	<input type="text" value="56"/>	<input type="text" value="15"/>	<input type="text" value="9"/>	<input type="text" value="11"/>
Hour 7	<input type="text"/>	<input type="text" value="-"/>	<input type="text" value="-"/>	<input type="text" value="-"/>
Hour 8	<input type="text"/>	<input type="text" value="-"/>	<input type="text" value="-"/>	<input type="text" value="-"/>

Results summary

Peak hour

Maximum agents required

Lines required



Home | Free calculators | Products | 7

Online

Traffic

Calculators

How many agents do I need? 45 seconds wrap-up time
 3 minute call duration 80% of calls answered in 15 seconds
 1% blocking How many lines do I need into my call center?

Calculator menu **Call Center Calculator (Ansapoint)**
 Calculator index

- Erlang B
- VoIP bandwidth
- Call center
- Call minutes
- Erlangs to VoIP
- Ext. Erlang B
- Erlang C
- Engset

Site highlights

- Home page
- Online Calculators
- Products
- Erlang for Excel™ Forum
- Technical papers
- What is an Erlang?
- Contact us

Internet Telephony

We now offer high quality, low cost Internet Telephony.

Instant sign up and online account management. A-Z Wholesale services also available.

[Click here for info](#)



Free newsletter

Brief instructions

Here is a brief introduction to the calculator. For more detailed information, press the *Help* Button which opens a new browser window on your desktop.

- This calculator, which is based on the Erlang B and Erlang C traffic models, helps you

Call Centre Calculator ✖

Targets and assumptions

Average call duration (s)

Average wrap up time (s)

Call answering target % answered in seconds

Trunk blocking target

Hourly calls and results (Enter number into calls column and click mouse out of box)

Hour	Calls	Avg. delay	Agents	Lines
Hour 1	<input type="text" value="56"/>	<input type="text" value="41"/>	<input type="text" value="8"/>	<input type="text" value="12"/>
Hour 2	<input type="text" value="56"/>	<input type="text" value="41"/>	<input type="text" value="8"/>	<input type="text" value="12"/>
Hour 3	<input type="text" value="56"/>	<input type="text" value="41"/>	<input type="text" value="8"/>	<input type="text" value="12"/>
Hour 4	<input type="text" value="56"/>	<input type="text" value="41"/>	<input type="text" value="8"/>	<input type="text" value="12"/>
Hour 5	<input type="text" value="56"/>	<input type="text" value="41"/>	<input type="text" value="8"/>	<input type="text" value="12"/>
Hour 6	<input type="text" value="56"/>	<input type="text" value="41"/>	<input type="text" value="8"/>	<input type="text" value="12"/>
Hour 7	<input type="text"/>	<input type="text" value="-"/>	<input type="text" value="-"/>	<input type="text" value="-"/>
Hour 8	<input type="text"/>	<input type="text" value="-"/>	<input type="text" value="-"/>	<input type="text" value="-"/>

Results summary

Peak hour

Maximum agents required

Lines required