

PAUL. WEISS, RIFKIND, WHARTON & GARRISON

1615 L STREET, NW

WASHINGTON, DC 20036-5694

TELEPHONE (202) 223-7300
FACSIMILE (202) 223-7420

JEFFREY H. OLSON
COMMUNICATIONS COUNSEL

TELEPHONE (202) 223-7326
E-MAIL: jolson@pauliweiss.com

1285 AVENUE OF THE AMERICAS
NEW YORK, NY 10019-6064
TELEPHONE (212) 373-3000
FACSIMILE (212) 757-3990

62, RUE DU FAUBOURG SAINT-HONORÉ
75008 PARIS, FRANCE
TELEPHONE (33 1) 53 43 14 14
FACSIMILE (33 1) 53 43 00 23

FUKOKU SEIMEI BUILDING
2-2 UCHISAIWAICHO 2-CHOME
CHIYODA-KU, TOKYO 100-0011, JAPAN
TELEPHONE (81-3) 3597-8101
FACSIMILE (81-3) 3597-8120

2918 CHINA WORLD TOWER II
NO. 1 JIANGUOMENWAI DAJIE
BEIJING, 100004
PEOPLE'S REPUBLIC OF CHINA
TELEPHONE (86-10) 6505-6822
FACSIMILE (86-10) 6505-6830

12TH FLOOR, HONG KONG CLUB BUILDING
3A CHATER ROAD, CENTRAL
HONG KONG
TELEPHONE (852) 2536-9933
FACSIMILE (852) 2536-9822

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February 22, 2000

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COMMUNICATIONS SECTION

Via Hand Delivery

Magalie Roman Salas, Secretary
Federal Communications Commission
445 12th St., S.W., Room TW-B204
Washington, D.C. 20554

Re: Ex Parte File No. ET Docket No. 98-206

Dear Ms. Salas:

Transmitted herewith for inclusion in the above-referenced docket are copies of various submissions made by SkyBridge LLC in other Commission proceedings relating to SkyBridge's ability and commitment to provide affordable advanced telecommunications services to rural America. These comments supplement the separate showings regarding this matter already made in the instant proceeding. The documents submitted herewith include:

- Comments of SkyBridge, L.L.C., in CC Docket No. 96-94, filed December 17, 1999;
- Comments of SkyBridge, L.L.C., in BO Docket No. 99-11, filed June 28, 1999;
- Comments of SkyBridge, L.L.C., in CC Docket No. 98-146, filed September 8, 1998;
- Reply Comments of SkyBridge, L.L.C., in CC Docket No. 98-146, filed October 8, 1998.

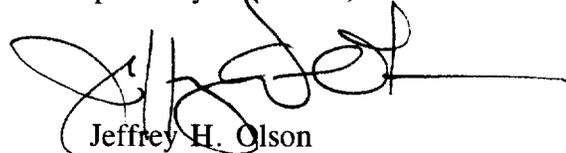
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Magalie Roman-Salas, Secretary
February 22, 2000

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If there are any questions regarding this matter, please contact the undersigned.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Jeffrey H. Olson", written over a horizontal line.

Jeffrey H. Olson
Attorney for SkyBridge L.P.

Enclosures

cc: Ari Fitzgerald
Dale Hatfield
Julius Knapp
Thomas Shugrue
Kathleen Ham
Thomas Stanley
Donald Abelson
Thomas Tycz

Before the
Federal Communications Commission
Washington, D.C. 20554

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

In the Matter of)
)
Federal-State Joint Board on)
Universal Service:)
Promoting Deployment and)
Subscribership in Unserved)
and Underserved Areas, Including)
Tribal and Insular Areas)

CC Docket No. 9

DOCKET FILE COPY ORIGINAL

COMMENTS OF SKYBRIDGE, L.L.C.

SkyBridge, L.L.C. ("SkyBridge") hereby submits its comments in response to the Notice of Proposed Rulemaking (the "NPRM") released in the above-captioned proceeding regarding increasing the deployment of telecommunication services to unserved and underserved areas of the country.

Satellite systems such as SkyBridge offer tremendous potential for achieving the Commission's Universal Service goals, not just for simple voice service, but also for the advanced telecommunications services that are quickly becoming as essential as voice service. By ensuring its policies support such new technologies and are integrated into the Universal Service framework, the Commission can take a significant step forward in providing rural access to the telecommunications tools that will become indispensable in the next century.

I. INTRODUCTION

As the Commission is aware, SkyBridge is an applicant for a Commission license for authority to launch and operate the "SkyBridge System," a global Ku-band nongeostationary orbit ("NGSO") fixed satellite service ("FSS") system, which will

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provide a range of data, voice, and video broadband services.^{1/} SkyBridge will offer interactive broadband and narrowband telecommunications with fiber optic-like connectivity, and will link users to local servers as well as to terrestrial broadband and narrowband networks. The broadband services that SkyBridge will offer include high-speed Internet access and on-line services, video-conferencing and video-telephony, telemedicine, multimedia entertainment services, telecommuting, LAN interconnection, and infrastructure links for telephony, wireless local loops and mobile communication; the narrowband services will include voice, video-conferencing and backup long haul connection.

Thus, immediately upon commencing service in late 2002, SkyBridge could provide high-quality, cost-effective basic and advanced telecommunications services to even the most remote areas of the country. Given the difficulty and cost of providing such service through terrestrial means, the FCC must ensure access to alternative delivery systems, such as the SkyBridge System, by expanding access to the Universal Service Fund for broadband satellite systems.

The Commission's current regulatory framework for addressing the country's universal service needs is centered on applying technologies optimized for deployment in urban areas to solve the problem of telecommunications services to rural areas. As a result, the USF is based on the premise that serving rural areas is inherently

^{1/} See Application of SkyBridge L.L.C. for Authority to Launch and Operate the SkyBridge System, File No. 48-SAT-P/LA-97, February 28, 1997; Amendment, File No. 89-SAT-AMEND-97, July 3, 1997; Amendment, File No. SAT-AMD-19980630-00056, June 30, 1998; Amendment, File No. SAT-AMD-19990108-00004, January 8, 1999. The application, as amended, was placed on public notice on March 23, 1999. See Report No. SAT-00013.

more expensive than serving urban areas. This premise is true *only so long as the Commission focuses on applying expensive terrestrial technologies to provide rural service*. As these comments will explain further, by expanding access to the USF to technologies, such as NGSO FSS, that are optimized for providing service to low population density and remote areas, a much more efficient and cost-effective use of the USF can be achieved.

II. SATELLITE TECHNOLOGIES ARE THE MOST COST-EFFECTIVE WAY OF PROVIDING A COMPLETE RANGE OF SERVICES TO RURAL AREAS.

A comparison of the relative costs of deployment for varying technologies is crucial to a determination regarding the most efficient use of the scarce Universal Service Funds. SkyBridge submits that upon examination of the relative costs of terrestrial and satellite technologies, the cost of deploying a broadband satellite connection is significantly less than the current cost of deploying and maintaining a simple voice circuit or low speed data network to rural areas.

A. Cost of Deploying Limited Terrestrial Service in Rural Areas is Very High

Rural areas of the United States are characterized by small numbers of users scattered over wide geographic regions, the exact opposite characteristics of the urban suburban populations that terrestrial wireline technologies are designed to serve efficiently.^{2/} As an example, the average loop length for telephone companies receiving

^{2/} A great deal of information about the cost of providing service in rural areas is available from the USDA's Rural Utility Service (RUS). RUS administers a telecommunications lending program, which it describes as being aimed at "creating public - private partnerships to finance the construction of the telecommunications infrastructure in rural America." As part of its lending (continued...)

funding from the USDA's Rural Utility Service is 20,330 feet whereas the average length of a Regional Bell Operating Company ("RBOC") loop is only 7,500 feet.^{3/} Since subscriber density and usage in rural areas is much lower than urban areas, the return on investment in that additional infrastructure is much lower. Most RUS companies have between 200 and 400 subscribers per exchange, yielding an average per subscriber cost of \$6,000, compared to \$800 for an urban area.^{4/} Using proxy models for calculating the cost per loop per month, the Rural Policy Research Institute (RURPI) has verified the wide disparity in costs of serving rural and non-rural areas. RURPI estimates that while the average monthly cost per loop for the RBOCs (which serve mainly non-rural areas) is \$23.99 to \$31.20 (depending on whether the BCPM 3.0 or HAI 5.0A cost proxy models are used, respectively), the average for telecommunications companies serving rural areas is \$44.28 to \$65.69, respectively.^{5/}

Terrestrial wireless service does not appear to be a significantly lower-cost alternative to wireline technologies. Nortel Networks estimates that fixed wireless access

(...continued)

program, RUS collects data on its borrowing companies. This data serves as a useful proxy for general statistics on rural telecommunications carriers and the costs they incur in providing service.

^{3/} Rowley, Tom, Rural Telecommunications: Why Your Community Isn't Connected and What You Can Do About It, TVA Rural Studies Staff Paper 99-1, January 1999.

^{4/} Egan, Bruce L., Improving Rural Telecommunications Infrastructure, prepared for the Tennessee Valley Authority, http://www.rural.org/workshops/rural_telecom/egan/.

^{5/} Glass, Victor, "The Adoption of Proxy Cost Models by Telecommunication Regulators as the Means to Calculate Universal Service Support: What is at Stake for Rural America?" P99-4, February 15, 1999 (available at <http://rupri.org/pubs/archive/old/telecomm/p99-4/index.html>).

networks that will deliver wireline voice quality and at least 56 kbps data speed "can be deployed in rural areas for "\$1,500 to \$10,000 per customer (including customer premise equipment)."^{6/} Nortel stated that "[t]he higher cost estimate would apply in the very low density areas and still represents a high capital cost per subscriber without some form of universal service subsidy."^{7/}

Thus, both terrestrial wireline and wireless solutions -- some of which can provide only voice and low speed data capability -- would require significant Universal Service Funding to implement. Neither offers a cost-effective solution to the Commission's objective of providing broadband service to remote areas.

B. Satellite Technologies Can Provide Voice Service and Broadband Applications in a Cost-Effective Manner

Unlike the terrestrial networks that the Universal Service Fund currently supports, SkyBridge's satellite system is designed particularly to serve markets outside of urban areas. Moreover, unlike the terrestrial solutions, the SkyBridge system will provide high-speed Internet access and other new media applications, in addition to the traditional voice services. SkyBridge will accomplish this at a projected end user cost which is lower than the costs of providing voice and low-speed data services through terrestrial means.

The one-time subscriber-acquisition cost for SkyBridge will vary from \$1,300 to \$1,900. The variation in cost is due mainly to differences in installation costs and estimates of the final cost of the CPE. The standard residential terminal is targeted to

^{6/} Comments of Nortel Networks in Extending Wireless Telecommunications Services to Tribal Lands, WT Docket No. 99-206 ("Tribal Lands"), at 4.

^{7/} Id. at n.6.

cost on the order of \$750 per terminal. Monthly subscription costs for residential end users will be \$30 to \$35 per month for unlimited usage at speeds of up to 20 Mbps receive and 2 Mbps send.^{8/} Attached hereto as Appendix A is a chart which provides a summary of the relative costs for various terrestrial wireline, wireless and NGSO FSS services to rural and remote areas.

It is likely that, as is the case with DBS CPE and cellular/PCS mobile hand sets, the cost of the SkyBridge terminal will be subsidized by the service provider in return for long-term service contracts. Nonetheless, some residents of rural and remote areas still may not be able to afford the initial CPE installation costs for access to a NGSO FSS system, just as they could not afford the real cost of acquiring terrestrial service. But subsidizing those costs is exactly what the Universal Service Fund is designed to do. In revamping the Universal Service Fund to take into account new technologies and achieving the Commission's objective of providing broadband access to all Americans, the Commission should include support for satellite-delivered services, such as those to be provided by SkyBridge.

C. Satellite Technologies Provide a More Efficient Means of Meeting the Commission's Universal Service Goals

By subsidizing the use of terrestrial technologies designed to serve concentrated population areas to provide service to rural and remote areas, the current structure of Universal Service promotes a highly inefficient use of resources.

^{8/} This is a fixed, flat fee that includes access to Internet, voice and data services. There are no additional Internet Service Provider, interconnection or other telecommunications service provider fees associated with this service. These are all factored into the monthly service fee. SkyBridge will also offer a professional terminal capable of three to five times the performance of its residential terminals.

Transplanting these urban technologies inevitably gives rise to the concept of “high-cost areas” that drive USF policy. Satellite systems such as SkyBridge’s do not have high-cost areas, and can efficiently address Universal Service needs.

The geographic and economic considerations that make service to rural and remote areas economically inefficient and, therefore, unattractive to terrestrial networks, are well-known and need not be belabored here. The point is that these problems do not confront NGSO FSS systems. Put simply, these systems present an opportunity to overcome the historic discrimination that rural and remote areas have suffered due to their economic and geographic realities. End users, whether living in Seattle, Washington, or Barrow, Alaska, can access NGSO FSS systems, such as SkyBridge, directly from their homes or offices, through use of a small (approximately 50 cm) satellite dish, and the service will cost the same amount and be of the same quality whether the end-user is in Seattle or Barrow.

SkyBridge recognizes that many rural telecommunications service providers rely heavily on the Universal Service Fund to support their terrestrial technologies and is not advocating removing subsidies from terrestrial providers. Indeed, since SkyBridge and other broadband satellite technologies will not be deployed until the year 2002, terrestrial technologies will continue to play a very important role in addressing the Universal Service needs of the United States. But in designing the universal service system, the Commission should recognize the advantages of using the Universal Service Fund to support access to satellite services when they become available.

III. BROADBAND ACCESS SHOULD BE SUPPORTED BY THE UNIVERSAL SERVICE FUND.

Currently, the Commission does not include Internet access or other advanced telecommunications services within the basket of services covered by USF.^{9/} This limited list of USF services may have been appropriate even five years ago. Now, however, that limitation borders on the unconscionable. The Commission must expand the list to encompass broadband access or else risk widening the gulf between "information have and have-nots."

As Secretary Daly recently confirmed at the Commerce Department's December 9, 1999, Digital Divide Summit -- echoing the words of President Clinton from earlier that day -- broadband access will better the lives of individual citizens in more ways than can be envisioned, let alone enumerated here. It will provide access to medical and educational services and is essential for the economic survival of remote and rural areas. As more and more companies move to e-commerce, high-quality high-speed access to the Internet will be a prerequisite for doing business. More than ever before, companies are locating where there is an advanced telecommunications network.

Comments filed in the Commission's Tribal Lands proceeding underline the importance of providing access to more than just basic phone services. NTCA stressed that access to advanced telecommunications services is "particularly

^{9/} NPRM at fn. 34 (Universal support mechanisms are available for single-party service; voice grade access to the public switched network; DTMF signaling or its functional equivalent; access to emergency services, interexchange service, and directory assistance and, for qualifying low-income customers, toll limitation services).

important to rural areas” since “[g]eographically isolated areas will rely on distance learning and telemedicine to remain viable.”^{10/} The Salt River Pima-Maricopa Indian Community and the National Tribal Telecommunication Alliance echoed these concerns, stating that “Indians, like all Americans, must have access to those advanced capabilities, such as Internet access and high-speed data services, that are becoming a necessity in today’s information economy.”^{11/}

The Commission must broaden the scope of services supported by the USF, to include satellite-based services. Terrestrial services cannot provide the solution. Satellite technology will provide the most wide-spread access to broadband network services and therefore deserve the Commission’s support.

CONCLUSION

The current levels of deployment and subscribership in remote and rural areas will not improve significantly -- and these areas will fall farther behind in the information race -- if the Commission continues to depend on a terrestrial model for provision of universal service. As satellite systems which can serve remote and rural areas are deployed, the Commission should begin to rely on these systems to

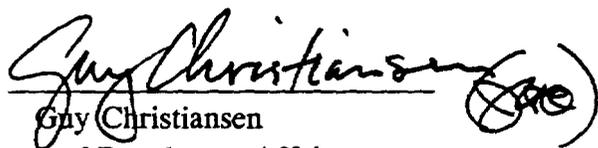
^{10/} Comments of NCTA at 5. See also Comments of Dr. John Gitlin, Dr. Ray Kilcoyne and Dr. Spero Manson at 4, requesting that the FCC “consider the demands of medical images as it develops policies for providing services to underserved areas.”

^{11/} Joint Comments of the Salt River Pima-Maricopa Indian Community and the National Tribal Telecommunication Alliance at 8.

provide universal service. At the same time, the Commission should broaden the definition of universal service to include broadband services.

Respectfully submitted,

SKYBRIDGE L.L.C.

By: 
Guy Christiansen
Director of Regulatory Affairs
3 Bethesda Metro Center, Suite 700
Bethesda, MD 20814
Ph: 301-657-6263

Of Counsel:

Jeffrey H. Olson
Laura B. Sherman
PAUL WEISS RIFKIND
WHARTON & GARRISON
1615 L Street, N.W, Suite 1300
Washington, DC 20036
Ph: 202-223-7300

December 17, 1999

APPENDIX A

Technology	Terrestrial Wireline	Terrestrial Wireless	Broadband Satellite (NGSO FSS)
Voice Capability	Yes	Yes	Yes
Data Capability	Up to 56 kbps Upgrades limited by distance from Central Office	At least 56 kbps	Up to 20 Mbps
Customer Acquisition Cost	\$6,000	\$1,500 to \$10,000, depending on subscriber density	\$1,300 to \$1,900
Monthly Fee	\$44-\$65	--	\$30-\$35

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

In the Matter of)
)
Telephone Service for)
Indians on Reservations)

BO Docket No. 99-11

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

COMMENTS OF SKYBRIDGE L.L.C.

SkyBridge, L.L.C. ("SkyBridge"), by its attorneys, hereby submits its comments in response to the Public Notice issued by the Federal Communications Commission (the "Commission") in the above-captioned docket.^{1/} In the Public Notice, the Commission asked interested parties to provide "recommendations for solutions which will improve access to telephone service on reservations," and to address the "availability of advanced services, including Internet access for educational uses, health-related information, and other basic needs."^{2/} SkyBridge submits that one key means of improving access to basic and advanced telecommunications services on reservations is through the swift licensing and promotion of satellite broadband technology, such as that currently being developed by SkyBridge.

^{1/} Public Notice, FCC To Hold Second Public Hearing In Series On Telephone Service For Indians On Reservations; Set For March 23 In Chandler, Arizona, DA 99-430 (rel. March 2, 1999) ("Public Notice").

^{2/} Id.

I. INTRODUCTION

As the Commission is aware, SkyBridge is an applicant for a Commission license for authority to launch and operate the "SkyBridge System," a global nongeostationary ("NGSO") satellite system, which will provide a range of data, voice, and video broadband services in the Fixed-Satellite Service ("FSS") in the Ku-band.^{3/} SkyBridge will offer interactive broadband and narrowband telecommunications with fiber optic-like connectivity, and will link users to local servers as well as to terrestrial broadband and narrowband networks. The broadband services that SkyBridge will offer include high-speed Internet access and on-line services, video-conferencing and video-telephony, multimedia entertainment services, telecommuting, LAN interconnection, and infrastructure links for telephony, wireless local loops and mobile communication; the narrowband services will include voice, video-conferencing and backup long haul connection.

Thus, immediately upon commencing service in late 2001, SkyBridge could provide high-quality, cost-effective basic and advanced telecommunications services to even the most remote Indian reservations. Given the difficulty and cost of providing such services through terrestrial means, the FCC should take every opportunity to promote alternative delivery systems, such as the SkyBridge System.

^{3/} See Application of SkyBridge L.L.C. for Authority to Launch and Operate the SkyBridge System, File No. 48-SAT-P/LA-97, February 28, 1997; Amendment, File No. 89-SAT-AMEND-97, July 3, 1997; Amendment, File No. SAT-AMD-19980630-00056, June 30, 1998; Amendment, File No. SAT-AMD-19990108-00004, January 8, 1999. The application, as amended, was placed on public notice on March 23, 1999. See Report No. SAT-00013.

Specifically, the Commission should act quickly on the pending Ku-band NGSO FSS applications.

II. DISCUSSION

A. NGSO FSS Systems, Such As The SkyBridge System, Are Well-Suited To Provide The High-Quality Telecommunications Services That Indian Reservations Lack.

As is evident from the testimony and written comments received by the Commission from representatives of various Indian tribes,^{4/} telecommunications on reservations are woefully inadequate. For example, as noted by George Arthur, Council Delegate to the Navajo Nation Council, "77.5% of the residents of the Navajo Nation still do not have telephone services."^{5/} Moreover, as noted by Eagle Rael, Governor of the Pueblo of Picuris, only one third of the private residences in that Pueblo have basic phone service.^{6/}

The reasons for the lack of adequate telecommunications services on reservations are both economic and geographic. Reservations are located in some of

^{4/} See, e.g., Testimony of Chairman Stanley Pino of the All Indian Pueblo Council before the Federal Communications Commission, Albuquerque, New Mexico, January 29, 1999, at 2 ("Pino Testimony") ("we need affordable telephone service, adequate lines and serious respect for our cultural identities"); Testimony of George Arthur of the Navajo Nation Council before the Federal Communications Commission, Albuquerque, New Mexico, January 29, 1999, at 1 ("Arthur Testimony") ("... the development of a Navajo Nation-wide telecommunications network is critical to the Navajo people").

^{5/} Arthur Testimony at 2.

^{6/} Testimony of Eagle Rael, Governor, Pueblo of Picuris before the Federal Communications Commission, Albuquerque, New Mexico, January 29, 1999, at 1 ("Rael Testimony").

the most isolated and rugged areas of the country. Deployment of terrestrial telecommunications networks in these areas is extremely expensive. Reservations generally do not have sufficiently concentrated population centers to make deployment of advanced, or even basic services profitable for most terrestrial telecom operators. In addition, reservations historically have not had the concentration of businesses and high-traffic users that would make deployment and marketing of services attractive for terrestrial operators. Other testimony has shown that Federal and state subsidies are insufficient to attract terrestrial service providers^{7/} and that the costs associated with terrestrial buildouts run to millions of dollars.^{8/}

The geographic and economic considerations that make service to reservations unattractive to terrestrial networks, however, are not an issue for providers of satellite telecommunications such as SkyBridge. NGSO FSS systems such as the SkyBridge System present an opportunity to overcome the historic discrimination that reservations have suffered due to their economic and geographic realities. The systems could radically transform the lives of people on reservations and provide a new infrastructure that will help bring reservations all the benefits and opportunities of the emerging information economy. Additionally, such systems will

^{7/} See, e.g., Comments of US West Communications, Inc. ("US West"), March 31, 1999, at 6 (amount of Universal Service Fund received by US West falls far short of minimum funding necessary to support affordable service in high-cost rural areas where many Native American reservations are located).

^{8/} Id. at 11 (\$38 million is necessary to support terrestrial universal service in New Mexico); see also Arthur Testimony at 2 (estimated cost to connect a new subscriber is \$5,000 and a minimum of \$21 million needed to upgrade the existing network).

offer tribes the opportunity to take an active role in developing and deploying this infrastructure, without the need to rely on the investment decisions of outside entities.

End users will access the SkyBridge satellite constellation, for example, directly from their homes or offices, through use of a small (approximately 50 cm) user terminal, without the need to access any intervening terrestrial network.

Contrary to the testimony of some,^{9/} satellite services are not cost prohibitive. The cost of a SkyBridge user terminal, for instance, will be approximately \$700, and the monthly charges for service are expected to be comparable to current charges for terrestrial telephony or Internet access in urban areas. Because NGSO FSS systems do not require an expensive terrestrial network, they are able to bring urban connectivity and prices to remote and rural areas.^{10/} They will, in effect, eliminate the traditional geographic discrimination these areas have suffered.

B. NGSO FSS Systems, Such As The SkyBridge System, Are Flexible Enough To Efficiently Meet The Needs Of A Variety Of End Users.

The ability to offer a broad range of services such as videoconferencing, high-speed data networking, Internet access and voice service at a competitive cost will provide a significant step forward in increasing economic activity, attracting business investment, and bettering the lives of citizens living on Indian reservations. While simple communications solutions may meet the current

^{9/} See Arthur Testimony at 8.

^{10/} See Testimony of Peter Carson, AwayComm, Inc., January 29, 1999 (\$800 per home required); testimony of Karen Butler, National Indian Telecommunications Institute, January 29, 1999, at 1 (initial POTS line into a reservation home can cost between \$10,000 and \$60,000).

basic telecommunications needs of residential Indian users, economic and social growth and development require the flexibility to meet the needs of businesses, educational facilities, hospitals, and public safety officials, among others. As many of the tribal representatives noted,^{11/} services such as telemedicine and distance learning can bring much needed educational and health services to Indian reservations.

Even for residents that do not desire broadband services,^{12/} these systems can serve as the backbone of a more efficient, less costly network on Indian reservations. A single SkyBridge user terminal, for instance, has enough capacity to serve as a backhaul mode for a wireless local loop. SkyBridge estimates that the cost of a 3-minute phone call over its system to any point in the world would be roughly \$0.04.

NGSO FSS systems also will allow the provision of medical, public safety, social and educational services on reservations that would otherwise be prohibitively expensive. For example, a small clinic with only one doctor, or even a layman with basic medical skills, may be able to meet the health needs of the local population. In many areas the nearest hospital is hours away, and access is prohibitive for many reservation residents. However, through the use of telemedicine, diagnoses can be made, x-rays can be read and treatment can be given at a fraction of the cost of moving the patient or sending a doctor to the area.

^{11/} See, e.g., Pino Testimony at 1-2; Arthur Testimony at 3; Testimony of Arnold Cassadore of the Jicarilla Apache Tribe before the Federal Communications Commission, Albuquerque, New Mexico, January 29, 1999, at 2.

^{12/} As noted above, however, the cost of access through a SkyBridge terminal is far less than the cost of building out terrestrial networks.

Similarly, a teacher on a reservation may have only limited contact with other educators and support. Simple tasks such as reviewing new textbooks, confirming testing requirements or supplementing teaching materials are made significantly more difficult in remote communities. The cost in the additional time, fuel and effort required to access such materials can be significant. In addition, access to advanced information is often possible only in the biggest cities. Through distance learning, NGSO FSS systems can give these remote areas the same access to information, teachers and resources that was previously possible only in the largest cities.

The potential advances in agriculture also are great. Through better communications, farmers can determine market prices, locate buyers worldwide, and have access to information on crop production, disease prevention and marketing. Again the value of this information -- especially in cases where it has been totally unavailable -- will more than justify the cost to many farmers.

Finally, the SkyBridge System can be used to provide technical training for workers, facilitate communications among government officials, and improve the skills of health professionals, teachers and farmers. Many of these opportunities likely would be unavailable if only traditional terrestrial telecommunications were used.

C. Satellite Technologies Will Allow Indians To Move Away From Their Traditional Dependence on Distant Telecom Providers.

The new generation of satellite systems will provide Indian tribes a means to move away from their historic reliance on distant telecom service providers.

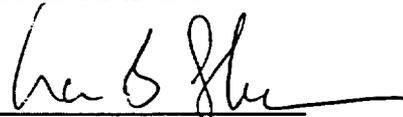
Provision of high-quality telephone and advanced telecommunications services will not require deployment and maintenance of expensive terrestrial infrastructure; rather, it will require only the sale of terminals, the development of markets for the services, and the management and servicing of customers. This is something that the tribes themselves are ideally positioned to accomplish. The basic infrastructure will be in place and available to the reservations when the SkyBridge System is turned on in late 2001. All that a user will need in order to receive NGSO FSS services is access to a terminal and a clear view of the sky. Within this model, tribal service providers should be able to take an active role in developing their own indigenous markets and in deploying the NGSO FSS services, without relying upon investment decisions of outside entities.

III. CONCLUSION

By acting quickly and favorably on the pending Ku-band NGSO FSS license applications, the Commission will open up a significant avenue for access to affordable, high-quality telephone and advanced telecommunications services on Indian reservations. We urge the Commission to support the development and market entry of SkyBridge and other NGSO FSS systems.

Respectfully submitted,

SKYBRIDGE L.L.C.

By: 

Phillip L. Spector

Laura B. Sherman

Kira A. Merski

Paul, Weiss, Rifkind, Wharton & Garrison

1615 L Street, N.W., Suite 1300

Washington, D.C. 20036

Telephone: (202) 223-7300

Facsimile: (202) 223-7420

Its Attorneys

June 28, 1999

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

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

In the Matter of)
)
Inquiry Concerning the Deployment of)
Advanced Telecommunications)
Capability to All Americans in a Reasonable) CC Docket No. 98-146
and Timely Fashion, and Possible Steps)
to Accelerate Such Deployment)
Pursuant to Section 706 of the)
Telecommunications Act of 1996)

COMMENTS OF SKYBRIDGE

SKYBRIDGE L.L.C.

Phillip L. Spector
Jeffrey H. Olson
Patrick S. Campbell
Paul, Weiss, Rifkind, Wharton & Garrison
1615 L Street, N.W., Suite 1300
Washington, D.C. 20036
Telephone: (202) 223-7300
Facsimile: (202) 223-7420

Its Attorneys

September 8, 1998

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Letter from Pascale Sourisse to the Honorable William E. Kennard Att. A

Statement of David Finkelstein Before the Subcommittee on Communications of the Senate Committee on Commerce, Science and Transportation Att. B

SUMMARY

SkyBridge L.L.C. ("SkyBridge") hereby submits comments in response to the Commission's Notice of Inquiry ("NOI") in the above-captioned matter. The NOI sought comments on how the FCC can best effectuate the mandate in Section 706 of the Telecommunications Act of 1996 that it "encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans." SkyBridge submits that global satellite networks and technology, such as that being developed by SkyBridge, will provide a cost-effective and expeditious means of delivering broadband communications to all Americans.

In the NOI, the Commission identified two major obstacles posed by existing telecommunications networks: first, existing telephone lines do not provide advanced telecommunications capability for the "last-mile" to the homes of residential customers; and second, existing broadband networks do not extend to certain rural and other high-cost areas. Given the huge costs associated with bringing fiber optic and/or terrestrial wireless systems to all homes -- particularly those in rural or hard-to-reach areas -- these problems are not likely to be solved by terrestrial technology in the near future.

On the other hand, the global broadband satellite system being implemented by SkyBridge will, upon its commencement of service in 2001, overcome both the "last-mile" and coverage shortcomings of existing networks, and provide advanced telecommunications capability to all Americans, whether in urban, rural, or extremely remote areas. Moreover, because the costs of delivering service via the SkyBridge network will not be materially

affected by the user's location (unlike terrestrial technologies), the SkyBridge system will create instant broadband bandwidth for everyone on the planet from the outset -- at the same time and on an equal basis in terms of quality and speed. The SkyBridge network will thus create an advanced broadband telecommunications blanket linking every point in the United States with every other point on the face of the globe.

SkyBridge has sought authorization from the FCC to deploy its global broadband network and begin competing with other carriers in the race to deliver advanced telecommunications capability to all Americans. While SkyBridge's application has been on public notice for over a year, and the pleading cycle with respect to that application has long since expired, the Commission has not granted SkyBridge's request for authorization. In order to fulfill Congress' mandate that the FCC take regulatory action to hasten the deployment of systems offering the capabilities that will be offered by SkyBridge, the Commission should now grant SkyBridge's application.

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

In the Matter of)
)
Inquiry Concerning the Deployment of)
Advanced Telecommunications)
Capability to All Americans in a Reasonable) CC Docket No. 98-146
and Timely Fashion, and Possible Steps)
to Accelerate Such Deployment)
Pursuant to Section 706 of the)
Telecommunications Act of 1996)

COMMENTS OF SKYBRIDGE

SkyBridge L.L.C. ("SkyBridge"), by its attorneys, hereby submits these comments in response to the Notice of Inquiry ("NOI") released by the Federal Communications Commission (the "FCC" or "Commission") in the above-captioned proceeding.^{1/} In the NOI, the Commission requested comment on how it can best effectuate the mandate established by Congress in Section 706 of the Telecommunications Act of 1996; that Section requires the Commission to take certain actions to "encourage the deployment on a reasonable and timely basis of advanced telecommunications capability to all Americans."^{2/}

^{1/} FCC 98-187, CC Docket No. 98-146 (Aug. 7, 1998).

^{2/} Pub. L. 104-104, Title VII, §706, Feb. 8, 1996, 110 Stat. 153, reproduced in the notes under 47 U.S.C. §157. Section 706 requires the Commission "to establish a national policy framework designed to accelerate rapidly the private sector deployment of advanced telecommunications." S. Rep. 104-23 at 27, March 30, 1995. According to that Section, "'advanced telecommunications capability' is defined, without regard to any transmission media or technology, as high-speed, switched, broadband telecommunications capability that enables users to originate and receive high-quality voice, data, graphics, and video telecommunications using any technology." 47 U.S.C. §157 note.

I. INTRODUCTION

In seeking comment on how it can best hasten the deployment of advanced telecommunications capability in the United States, the Commission posed three major questions:^{3/}

- (1) What companies will soon deploy advanced telecommunications services that will "reach schools and classrooms, people in rural areas and inner cities, and other customers who are traditionally thought to be less profitable?"
- (2) How can the Commission determine whether such advanced capability is being deployed in a "reasonable and timely fashion" to all Americans?
- (3) What are some of the actions that the Commission can take to speed the deployment of advanced capability, particularly to "remov[e] barriers to infrastructure investment and . . . promot[e] competition in the telecommunications marketplace?"

SkyBridge submits that the answers to these important questions can best be found through the development and promotion of satellite technology, such as that currently being developed by SkyBridge.

SkyBridge is a U.S.-based partnership of several major players in the satellite and communications industries, including Alcatel and Loral.^{4/} As the Commission is aware, SkyBridge filed an application in February 1997^{5/} seeking authorization to establish a new

^{3/} NOI at ¶¶ 8-10.

^{4/} Other strategic partners of SkyBridge include Mitsubishi Electric, Sharp, Toshiba, Spar, Aerospatiale and CNES.

^{5/} See Application of SkyBridge for Authority to Launch and Operate a Global Network of Low Earth Orbit Communications Satellites Providing Broadband Services in the Fixed Satellite Service, File No. 48-SAT-P/LA-97, filed Feb. 28, 1997; Amendment, File No. 89-SAT-AMEND-97, filed July 3, 1997; Further Amendment, filed June 30, 1998.

broadband nongeostationary orbit ("NGSO") fixed satellite service ("FSS") system that, upon commencing service in 2001, would immediately make available advanced telecommunications capability to every American. Additionally, on July 3, 1997, SkyBridge filed a Petition for Rulemaking to permit such NGSO FSS operations in the Ku-band.^{6/} On July 28, 1997, the Commission released the SkyBridge rulemaking petition for public comment,^{7/} and on August 28, 1997, the Commission determined that, upon initial review, the SkyBridge application was acceptable for filing, and released the application for public comment.^{8/} Oppositions and comments were filed by various parties regarding both the application and petition. The pleading cycles on both filings have long since expired, and these requests have for some time been ripe for grant.

It should be noted that SkyBridge has recently addressed, before the Commission and Congress, issues similar to those raised in the NOI. In response to a speech delivered by FCC Chairman Kennard earlier this year on the deployment of broadband infrastructure in the United States, Pascale Sourisse, the President and CEO of SkyBridge, wrote a letter to the Chairman describing SkyBridge as a company that, "at its

^{6/} See SkyBridge's Petition for Rulemaking: Amendment of the Commission's Rules to Permit Operation of NGSO FSS Systems Co-Frequency with GSO and Terrestrial Systems in the 10.7- 2.7 GHz, 12.75- 13. 25 GHz, 13.75-14.5 GHz, and 17.3-17.8 GHz Bands, and to Establish Technical Rules Governing NGSO FSS Operations in these Bands, RM No. 9147, filed July 3, 1998.

^{7/} See Public Notice, Report No. 2213 (July 28, 1997).

^{8/} See Public Notice, Report No. SPB-98 (Aug. 28, 1997).

core and by design -- is a 'last mile' broadband access solution."^{2/} In addition, David Finkelstein, senior vice president of SkyBridge, in a recent statement delivered to a subcommittee of the U.S. Senate contemplating bandwidth issues, established that new satellite technologies such as SkyBridge can provide: (1) the availability of broadband telecommunications to literally everyone; (2) the opportunity to create true competition and universal service in local telecommunications; and (3) increased services through efficient use of the scarce radio frequency spectrum.^{10/} The Sourisse letter and the Finkelstein statement are attached to, and by this reference made a part of, these comments.

In these comments, SkyBridge will establish that broadband satellite systems will provide an expeditious and cost-effective means of delivering advanced telecommunications services to all Americans -- whether in urban, suburban, rural or extremely remote areas -- at the same time and on an equal basis. In order to fulfill its Congressional mandate, therefore, the Commission should take action to facilitate the development and deployment of such systems.

^{2/} Letter from Pascale Sourisse to the Hon. William E. Kennard (June 30, 1998).

^{10/} *Bandwidth Issues: Hearing Before the Subcommittee on Communications of the Senate Committee on Commerce, Science and Transportation (Apr. 22, 1998) (Statement of David Finkelstein).*

II. DISCUSSION

A. SkyBridge is Preparing to Deploy Advanced Telecommunications Capability to All Americans.

In posing the question of what entities will have the ability to make broadband telecommunications capacity available to all Americans, the Commission identified two sets of challenges: bandwidth and coverage. First, with respect to bandwidth, the Commission noted that the copper wire infrastructure that ends in the homes of Americans -- the "last mile" -- "is not broad or fast enough to be called advanced."^{11/} Chairman Kennard, in his recent speech, likened this problem to attempting to fill a backyard swimming pool with a garden hose.^{12/} Despite the fact that "[t]here's plenty of water in the city reservoir to fill the pool, and there are huge water mains that can deliver water down the street," the pool is filled very slowly because "the hose is too small compared to the amount of water you are trying to pump through it."^{13/}

The second obstacle identified by the Commission relates to geographic coverage: the terrestrial, wire-based broadband "backbone"-- the network of reservoirs and water mains, so to speak -- either does not serve numerous geographic areas, or serves those

^{11/} NOI at ¶ 3.

^{12/} A Broad(band) Vision for America, Remarks by William E. Kennard, Chairman, Federal Communications Commission, to the Federal Communications Bar Association (June 24, 1998) ("Kennard 6/24/98 Speech").

^{13/} Id.

areas inadequately.^{14/} This inequitable distribution of service may be traced largely to the substantial, at times prohibitive, cost of wiring homes in remote, less-populated, and mountainous areas. For these reasons, the entity "able and motivated to deploy advanced services soon, especially to residential customers," must be able to provide bandwidth that is sufficient to handle advanced telecommunications applications, especially in the so-called "last mile" to the home, and must be able to extend such telecommunications services to all Americans, including those in rural and high-cost areas. In other words, as stated by Chairman Kennard, while the technology for advanced communications is here, "[w]e just need to get it to America's homes."^{15/}

The Commission suggested in the NOI that using new software or technology to squeeze additional bandwidth out of traditional telephone lines may be the answer to defeating the "last-mile" problem, and delivering high-bandwidth services inside homes.^{16/} There is, however, a far better solution. Satellite technologies, such as that being implemented by SkyBridge, can overcome the existing technical barriers to the provision of advanced telecommunications capability, and thereby address the "last-mile" and the "high-cost area" obstacles, more quickly and effectively than traditional terrestrial networks. Upon its deployment, the SkyBridge network will instantaneously create advanced

^{14/} NOI at ¶ 3

^{15/} Kennard 6/24/98 Speech.

^{16/} NOI at ¶¶ 19-20.

telecommunication capability for all "schools and classrooms, people in rural areas and inner cities, and other customers who are traditionally thought to be less profitable."^{17/}

SkyBridge will offer interactive broadband and narrowband telecommunications services worldwide via an 80-satellite Ku-band NGSO system, providing fiber optic-like connectivity to nearly all parts of the globe, and linking users to local servers as well as terrestrial broadband and narrowband networks. The broadband services SkyBridge will offer match the definition of "advanced telecommunications capability" set forth in Section 706, and include high-speed Internet access and on-line services, video-conferencing and video-telephony, multimedia entertainment services, telecommuting, LAN interconnection, and infrastructure links for telephony, wireless local loops and mobile communication. In addition, the system will provide narrowband services for voice, video-conferencing, data transmission and backup longhaul connection. The SkyBridge system is scheduled to initiate service in 2001.

SkyBridge will thus offer a solution to the "last-mile" problem by transmitting high-bandwidth data from its satellites directly to user terminals located inside homes, schools, and businesses. The SkyBridge network will also address the "high-cost-area" problem by creating access to the information superhighway for rural, high-cost, and sparsely populated areas that are not presently connected to broadband networks. Americans in every part of the country will be able to receive the advantages of services such as telemedicine, teletraining, and access to essentially unlimited information databases, thus improving the

^{17/} See NOI at ¶ 8.

country's productivity and educational, social, and health care services. These applications will be available in "remote elementary and secondary schools and classrooms such as in Native American areas or the Alaskan Bush,"^{18/} at the same speed and quality, and at the same time, as they are available in Chicago or Los Angeles.

SkyBridge's technology will also address the Commission's "interest[] in the amount and adequacy of backbone between the United States and other countries."^{19/} As the Commission recognized, Americans may desire advanced services that begin or end in another country. And while, as the Commission stated, submarine cables are being constructed, or could be constructed, on certain U.S.-foreign country routes,^{20/} terrestrial cables will never form a blanket broadband network connecting all points in the world. SkyBridge's satellite technology can do so, however, by instantaneously creating a broadband link between any point in the United States and practically every other point on the face of the globe. Instead of creating communications channels between "select" routes, the SkyBridge network will be capable of creating links between every nation on earth. And, as in the United States, the SkyBridge system will face no "last-mile" or coverage shortcoming in any foreign country.

The SkyBridge satellite system will feature many additional advantages in comparison to existing technologies. For example, whereas plain old telephone service

^{18/} See NOI at ¶ 46.

^{19/} Id. at ¶ 35.

^{20/} Id.

("POTS") and ISDN have data rates limited to 64 kilobits per second and 144 kilobits per second, respectively, SkyBridge's target application will feature information speeds from 2 to 10 megabits per second (some 30-70 times faster). In addition, the SkyBridge system will be far more cost-effective than landline networks in lower population density regions because, as a satellite-based service, its costs are not heavily dependent on population densities or on the quality of existing infrastructure.^{21/} Thus, while landline technologies such as the Digital Subscriber Line ("xDSL"), Hybrid Fiber Coax ("HFC"), and Fiber to the Curb ("FTTC") have data rate capabilities and offer latency performances similar to that of the SkyBridge system, SkyBridge can satisfy lower population density markets more quickly and at lower cost.^{22/}

Facilitation of the deployment of satellite systems such as SkyBridge is thus the most effective and advantageous means of effectuating Congress's mandate that the FCC encourage the availability to all Americans of advanced telecommunications infrastructure.

B. SkyBridge Can Deploy Advanced Telecommunications Capability in a Reasonable and Timely Fashion.

The second major question posed by the Commission related to ways in which the FCC can ensure the deployment of advanced telecommunications services in a reasonable

^{21/} See *id.* at ¶ 46 & n. 46, quoting Merrill Lynch, Global Satellite Marketplace 98, 120-21 ("satellites are the least cost solution for serving regions with low subscriber density") (Apr. 22, 1998).

^{22/} SkyBridge also offers a more cost-effective solution in non-urban markets than terrestrial wireless systems such as Local Multipoint Distribution Service ("LMDS"), due to the short pathways and line-of-sight problems inherent with terrestrial Ka-band technology.

and timely manner.^{23/} Congress and the Commission are clearly aware of the need to provide all Americans with equal and affordable access to advanced telecommunications capability as soon as possible, both to maintain the global competitiveness of the United States and to ensure equal access to all Americans, regardless of location.

It is open to serious question whether terrestrial wireline or wireless broadband networks will ever be deployed to all Americans and be made available in homes across America, and it is certain that such capability will not be made available during the next decade. The costs of installing the necessary fiber-optic infrastructure into all American homes and establishing advanced networks in rural and other high-cost areas are staggering, with no assurance of adequate demand to justify the costs.

A global satellite network, such as that proposed by SkyBridge, can overcome difficulties arising from terrain and distance without incurring additional infrastructure costs; the cost of delivering service is not materially affected by the user's location. Unlike the terrestrial networks being developed and improved today, satellite technology can create instant broadband infrastructure for everyone on the planet from the outset. Once the SkyBridge system is in orbit, it will provide immediate global coverage into all homes, schools and businesses, and will provide advanced services that are immediately accessible in both a remote area with one user and an urban metropolis with a million users.

The SkyBridge system also lowers costs by using a combination of transmission means, including satellite links for local access (the "last mile") and existing

^{23/} NOI at ¶ 9.

terrestrial broadband networks for long-distance connections. SkyBridge's use of the Ku-band for this service further reduces costs, as it relies on already proven technology, in a frequency band that is far more immune to, e.g., rain-fade than Ka-band satellite systems. Once the SkyBridge system is in place in 2001, the user need invest only in a small earth station to receive immediate broadband service, no matter how isolated the location; equipment costs should be comparable to a DBS subscriber's hardware investment. Systems such as SkyBridge will thus be made available to all Americans "on a reasonable and timely basis," in accordance with Congress' mandate in Section 706 of the 1996 Act.

C. The Commission Can Remove Barriers to Infrastructure Investment and Promote Competition by Facilitating the Deployment of the SkyBridge System.

The third major inquiry posed by the Commission in the NOI was a request for advice on steps that the FCC can take to speed the advent of the availability of advanced telecommunications capability for all Americans. SkyBridge submits that the Commission can do so by promoting the development and deployment of systems such as SkyBridge. As demonstrated above, satellite technology offers the most cost-effective solution to the "last-mile" and "high-cost-area" problems, and can provide that solution within a reasonable time frame. Regulatory uncertainty with respect to the status of license applications and other relevant FCC proceedings in connection with the deployment of such systems may, however, hinder the development of such networks by making it difficult for innovative companies such as SkyBridge to attract sufficient capital to establish their networks.

Helping to speed the launching of the SkyBridge system will also increase competition in the industry for advanced telecommunications services. In the NOI, the

Commission, recognizing that there are numerous companies promising to provide advanced telecommunications capability and that these companies may produce a significant degree of competition, asked how it could create incentives for such competitive entry.^{24/} SkyBridge submits that the best way to promote this form of competition is to ensure that regulatory approvals sought by entities such as SkyBridge are processed expeditiously.^{25/} While it helps for the Commission to consider whether to eliminate price cap regulation, impose regulatory forbearance, or require structural separation for local exchange carriers with respect to advanced services,^{26/} the Commission cannot lose sight of the fact that some potential players have not yet even been cleared to enter the competition. Thus, in addition to improving the rules of the game for existing players, it is important for the Commission to clear the way for others to join the race to bring advanced telecommunications capability to all Americans, and to do so quickly, so as to allow the new entrants to compete effectively with the incumbents.

^{24/} Id. at ¶ 56.

^{25/} Section 7(b) of the Communications Act of 1934 requires the Commission to "determine whether any new technology or service proposed in a petition or application is in the public interest within one year after such petition or application is filed." 47 U.S.C. § 157(b). SkyBridge's application has been on file with the Commission for well over a year, and was accepted for filing a little over a year ago. Under Section 7 of the Act, the Commission should already have taken final action on SkyBridge's application.

^{26/} See Deployment of Wireline Services Offering Advanced Telecommunications Capability, Memorandum Opinion and Order and Notice of Proposed Rulemaking, FCC 98-188 (Aug. 7, 1998).

III. CONCLUSION

By supporting the development and market entry of new satellite-based technologies such as the SkyBridge system, the Commission will spur competition in the broadband industry, and can thereby meet the challenge of accelerating the deployment of advanced telecommunications capability to all Americans on an equal basis. Such capabilities will undoubtedly prove beneficial to citizens across the country, and demonstrate the United States' global leadership in the information revolution.

Respectfully submitted,

SKYBRIDGE L.L.C.

By: /s/ Phillip L. Spector

Phillip L. Spector

Jeffrey H. Olson

Patrick S. Campbell

Paul, Weiss, Rifkind, Wharton & Garrison

1615 L Street, N.W., Suite 1300

Washington, D.C. 20036

Telephone: (202) 223-7300

Facsimile: (202) 223-7420

Its Attorneys

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