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**Final Evaluation Report
Tribal Virtual Network**

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Overview of the Project

The Tribal Virtual Network (TVN) began in September 2001 as a consortium dedicated to bridging the digital divide through the usage of Access Grid technology supported by a broadband infrastructure. The consortium members are the UNM Native American Studies, the Indian Pueblo Cultural Center (IPCC), the Jemez Educational Center, the Jicarilla Apache Cultural Center, the Pojoaque Poeh Arts Center, and the Pueblo of Zuni. The goals of the TVN were to: 1) Establish two-way real time audio/video communication via the Internet, 2) Improve network connectivity, 3) Develop technical skills, 4) Acquire equipment, and 5) Formulate teams and collaborate. In February 2002, computer software training was offered to all the communities. Over the last two years, internet connectivity has been established in all five of the participating tribal communities. In addition, each community received computer hardware and software.

Through participation in the TVN, the consortium members used Access Grid (AG) technology. This technology enables real time audio/video communication between multiple sites using internet connectivity. The AG is capable of being used for large-scale distributed meetings, collaborative work sessions, seminars, lectures, tutorials and training. The group meeting capability differs from desktop-to-desktop tools that focus on individual communication. The TVN project provided each site with the inSORS Grid, CHECKSNet Internet and inSORS Grid software. CHECSNet, of New Mexico State University, provided

each site with a T-1 (1.5 megabyte per second) connection that is multicast enabled. The sites are able to connect to the inSORS Grid and Access Grid community through the multicast network.

Evaluation Rationale

This final evaluation was commissioned by Department of Commerce, Technology Opportunities Program for the purpose of determining 1) the extent to which participating tribal communities have accomplished their goals and are using the technology, 2) identifying facilitating factors and barriers to goal accomplishment, 3) the tribal communities readiness and receptiveness for this project, and 4) what advice could be given to those embarking on similar projects.

The evaluation was guided by the following questions:

1. What have consortium members already accomplished? What kinds of projects are they doing with the TVN technology?
2. What do consortium members identify as successes and what facilitated the successes?
3. What barriers or challenges did the members face in implementing the TVN?
4. To what extent were the tribal communities ready for this project, in terms of awareness of the needed technology infrastructure, staffing, and funding?
5. How receptive are the tribal members to this technology?
6. What advice could be given to others embarking upon a similar project?

Evaluation Design and Methodology

This evaluation was designed as a case study and used qualitative methods that included visits to each tribal community and to the UNM Native American Studies office. The purpose of the visits was to observe how the technology was being used and to interview the tribal community consortium members and members of the UNM TVN staff. The visits took place over a period of nine months. The sites were visited in the summer of 2004 and winter of 2005. Ten visits took place; two for Zuni, Dulce, Pojoaque and the IPCC, one to the Jemez Pueblo, and one visit to the UNM TVN office. A second visit to Jemez was scheduled but had to be cancelled due to road closures from inclement weather. The consortium members at Jemez were re-contacted by phone and email, but did not respond to attempts to reschedule. Each visit lasted from one to four hours.

The interview questions were developed collaboratively by UNM TVN staff and the project evaluator. All the consortium members requested a copy of the interview questions prior to the interview. Copies of the interview guides are in Appendix A. The interviews took place in the consortium members' offices and computer labs, and lasted from 45 minutes to 2.5 hours. Both the program administrator and the systems/technical support persons were interviewed in all the sites. Interviews at the IPCC, Zuni Pueblo, the Jicarilla Apache Cultural Center, and at UNM were tape recorded and the interview tapes were transcribed to accurately capture the participants' opinions and views. At

Pojoaque and the Jemez Educational Center, the consortium members requested that the interviews not be taped and notes were taken on a lap-top computer during the interviews. The interview transcripts are found in Appendix B. Analysis involved reading and re-reading the transcribed data, interview notes and field notes from the site visits. Themes were identified and the data was coded according to themes and summarized. A summary and discussion of the findings follows.

Summary of the Findings

Goal Accomplishment and Use of the technology:

The TVN project provided three types of technology. First, each community received computers installed with a variety of software packages. The software packages included basic Microsoft Office applications, Adobe Photoshop, and video editing. One community, Jemez, provided opportunities for high school students to learn video-editing and produced videos using the software. Two of the communities, Jemez and Jicarilla in Dulce, set up computer labs allowing community members to use the word processing software to write papers and develop graphic arts and PowerPoint presentations. The IPCC has set up a "Living Classroom" that will be used for education and meetings.

Second, the TVN provided Internet access or connectivity to the member communities with T1 lines. In some situations, the TVN offered an upgrade to the existing technology that allowed multitasking. Some of the communities set up computer labs that made the Internet more accessible to consortium and

community members to use for research. Access to the Internet and the web-page design training offered by the TVN allowed the consortium members to develop web sites or update existing web pages.

Third, the TVN introduced the Access Grid to the consortium members. When asked how the Access Grid technology was used, the most frequent response was that the AG was being used to conduct and attend weekly meetings among the consortium members. These meetings served a variety of purposes, including providing an opportunity for consortium members to discuss technology issues and share information about hardware and software. Regarding the weekly AG meetings, members described the meetings as effective ways to share knowledge and discuss technology issues. However, the meetings were hindered by bandwidth limitations. Also, the attendance at the meetings was described as unpredictable due to inconsistent Internet connections. Another member described the interaction as being stilted...

“I would say it is and then that most others we just sit there and there's no interaction- to me I feel weird just to keep it going I'll say stuff to make sure that people are keeping attention.”

Expanding the use of the Access Grid:

Importantly, the AG was utilized in ways that reach beyond the TVN into the tribal communities and beyond. In November of 2003, the TVN members participated in the Super Computing Global Conference. Super Computing Global is a forum where new and innovative ideas in computing, networking, software and storage are presented, exchanged, discussed and debated. In February and

March of 2004, the IPCC collaborated with the American Diabetes Association (ADA) and the National Indian Council On Aging (NICOA) to present diabetes education programs to Jemez, Dulce, Zuni and Pojoaque. In April of 2004, the TVN was officially 'unveiled' to the AG community with a Blue Ribbon Cutting Ceremony. Members of the tribal governments attended the ceremony as well as a Native American State Senator from western New Mexico. In May 2004, web-page training was offered to consortium members. In June 2004, the Jicarilla Apache Cultural Center presented their community's project to create a Jicarilla Apache language dictionary. In October 2004, a fire prevention class was offered by AMERIND Risk Management to school children from Isleta Pueblo (at the IPCC), Zuni Pueblo and Jicarilla Apache Reservation in Dulce, NM. In November 2004, the TVN made their second appearance at Supercomputing Global. Also, Pojoaque Poeh Arts Center hosted a class for students traveling through New Mexico from Buffalo, New York. These students attended their Anthropology class at SUNY, Buffalo from a distance using the AG technology. The AG technology has also been used by medical professionals to provide medical information to persons in Pojoaque. A local doctor is using the AG technology to check on patients.

One of the consortium members remarked that the partnerships facilitated by the TVN technology benefited the Native American communities by reaching beyond the local community. Using the Internet connectivity, members have reached beyond their local and other consortium communities by setting up web-

pages. The Jicarilla Apache Culture Center put up a web-page in summer of 2004 and, to date, had more than 34,000 hits. In addition, the TVN consortium participated in the 2003 and 2004 Super Computing Global conferences. The benefits of the AG to reach beyond the local community were noted by this member:

“The AG has given us a chance to do some networking outside of our community”

One consortium member noted an unanticipated benefit of connecting the communities via the AG. That benefit was found in the socialization that occurred when tribal elders would recognize their friends from other communities. Social bonds were renewed as elders recognized and communicated with those from other communities that they had not seen for many years.

“It’s also an interesting way for the elders to socialize – because many of them may have gone to school together or been friends way back when and now they’re no longer as mobile but they’re able to communicate and that means a lot. Because unless they have a ride to - they don’t really see each other. So it’s a pleasant thing to have people in various audiences identify one another on the screen say ‘hey - how you doing - is that you?’”

One participant described the TVN project as “learning as you go” and this was evident in the changing of priorities as the communities became more familiar with the technology and its infrastructure requirements. For example, this project was initially conceptualized and administered through the UNM Arts of the Americas Institute. Many of the communities had originally intended to

utilize the technology to highlight the work of local tribal artists and to provide opportunities for consortium members to share information about various art forms, such as pottery and jewelry. However, the priorities changed for a variety of reasons. For example, in one community, the project needed to be moved to the Education Department, a site in which Internet connectivity could be more easily achieved. In another community, the project was originally housed at a museum. However, key personnel left the museum and the remaining staff lacked the knowledge or the desire to move the project forward.

All the consortium members were committed to bringing technology to their communities and increasing computer access for community members. One intended use of these computers was to provide Internet access and training on various software applications to community members. In some cases, priorities were changed due to a practical consideration of where and how internet connectivity could be established and a lack of an appropriate facility. Other situations precipitated a change in priorities due to shifting resources and changing local priorities. Presently, community computer labs are set up and operating in three of the communities.

Successes:

Primarily, the participants described their successes in terms of the technology. Establishing the network, getting the Internet connectivity, setting up the Access Grid nodes, getting the equipment and the training to be able to run the equipment were most often noted as success benchmarks. Several

communities noted the capacity building benefit of introducing new technology into the tribal community. While relatively few tribal members were aware of or understood the new technology, the equipment and training did build technological capacity beyond the TVN members, as staff members of the participating organizations gained an awareness of the capability to communicate over distances.

Success Facilitators:

The consortium members were asked what contributed to or facilitated their successes. The members frequently cited the importance of the node operator and their technical expertise in working the equipment and communicating with other node operators.

In one particular situation, a member noted the value of involving tribal government and leadership. Due to their power and leverage, the tribal government was positioned to negotiate with telecommunications companies to obtain the necessary infrastructure, whereas the community cultural organization lacked the resources and clout.

The UNM TVN staff was praised for the leadership and dedication in assisting the communities in negotiations with New Mexico State University and Qwest to set up the necessary technological infrastructure. UNM was also commended for:

“...moving ahead and getting us to the point that we’re at now, so where we have decision-making points and have the technology, the equipment in place, and in most instances the manpower...”

In addition, UNM was described as being key getting the member organizations set up and trained with the technology and ready to move into using it for the community.

Other members noted the importance of being able to speak with other individuals and organizations in the larger Access Grid community, some of whom have been involved with AG technology for several years. For example, Jennifer Tieg von Hoffman, an AG consultant from Boston University, participated in a TVN AG meeting, as well as visited the sites in October 2004.

The pivotal role of funding the project was noted as well. Several consortium members expressed appreciation to the Department of Commerce, under the Clinton administration, for providing funding of the TVN.

“It’s been real beneficial to our community. We feel that we’re real fortunate, you know; we feel that -- you know, we appreciate it; that, you know, they gave us the funding for it, and we’ve gotten a lot of benefits from it. And hopefully they’ll -- maybe they’ll come visit us, and they can see what we’ve done with it too, you know.”

Barriers and Challenges:

While all of the communities reported accomplishments attributed to the TVN technology, some felt frustrated that more had not been achieved. Though the project officially began in 2001, it was not until November 2003 before the TVN had their first successful AG session with all sites being active. The project proceeded at varying speeds in the different communities with the realization that the original goals would take more time, training, and technological infrastructure than was originally conceived. For example, in some communities,

getting Internet connectivity was more challenging than originally anticipated. Also, the members discovered that the initial audio speakers were not adequate and, as a result, each site was provided with better equipment. Consortium members report now having a better understanding of the AG's capability as well as its infrastructure requirements.

The consortium members most commonly mentioned limited bandwidth and funding as barriers; funding being noted as key to removing the other barriers. Regarding bandwidth, the Internet connectivity is provided through T1 lines and the narrow bandwidth offered by T1 connections resulted in numerous communication barriers. One member described using the T1 line as "counter-productive to the technology". Members noted an inconsistent network and choppy video and audio transmission, as well as a frequent tendency for the bandwidth to become overwhelmed. This resulted in poor transmission and a great deal of frustration on the part of AG meeting participants. Prior to acquiring the new speakers, the communication process became cumbersome as members would have to turn off their 'talk' function to keep from overloading the bandwidth. They could hear what was being said by other members, but needed to take an extra step in order to speak and had to ensure that only one site was speaking at a time. With the new speakers, this issue was reportedly resolved. Also, the limited bandwidth presented a barrier when participating in the larger AG community, as many of the other sites use T3 lines that overloaded the T1 bandwidth.

In addition to bandwidth limitations, the facility or lack of facility limited the development of partnerships. For example, members found it difficult to proceed with distance learning partnerships until larger facilities were secured. Other situations needed wireless connections to the larger rooms. In some cases, the communities did not initially have the technological infrastructure or adequate physical facilities to fully utilize the technology. For example, in Jemez, the consortium members determined that a better and larger facility across the road was needed to facilitate usage of the AG and they needed to secure funding to obtain a wireless connection. Once the funding was obtained, the project moved into a larger, classroom facility and the Jemez TVN could begin utilizing the AG and the Internet. In Zuni, the project systems person secured a sufficiently large room for the technology only to have the room given to another program. Later, the room was returned to the TVN program. At the Pojoaque Poeh Arts Center, a wireless system is still needed to connect several classrooms that stand apart from the main building to the technology. The consortium members all described experiencing a "learning as you go" process in regards to the facility and equipment needs.

A significant barrier was the lack of a designated program planning person at each site. The program planning person's responsibilities could include working with the local community to plan projects, advocating for the TVN with tribal leadership, and marketing the technology and its capabilities to the community. Initially, a UNM staff person, with both a computer and educational background, was designated to assist the consortium sites with program

planning. However, this position was funded through the UNM High Performance Computing Center for a limited time. The funding for the position ended just as the communities were positioned to begin marketing the AG in the community and planning programs.

Part of the TVN funding was granted to the consortium members to pay one quarter of a technical node operator's salary. The node operator's TVN responsibilities included attending the initial training sessions, setting up the AG node, installing and maintaining the equipment, and serving as their site's technical resource for TVN matters. Also, in each community, there were project coordinators. The role and responsibilities of the coordinator varied substantially across the consortium. In one community, the TVN project moved from the museum to the central tribal information systems office. While that resulted in easier access to the needed t-1 lines and technological infrastructure, the administrative and program planning responsibilities shifted to the technical node operator. In other communities, the coordinator was able to take a more active role in program planning. However, the coordinating function was not funded by the TVN, and coordinators often found themselves unable to commit time to the TVN.

Consequently, how the community conceptualized their goals changed as well. In one community, the major accomplishment involved setting up the technological infrastructure. In others, where the program coordinator was more involved or the node operator had more experience in program planning or marketing, they networked with other organizations or community individuals to

plan and present educational programs over the AG. Typically, the node operators were less motivated to conduct programs due to competing demands on their time.

Another feature of implementing this type of program in remote and rural communities is a potentially small pool of qualified personnel to implement and maintain the technology. In addition, one consortium member noted being restricted by tribal hiring preferences as well as not being able to pay the higher salary demanded by more qualified personnel.

The varying goals, priorities and needs of different sovereign nations contributed to the complexity of the TVN. With the exception of the IPCC, each TVN community was governed by tribal elected officials. Depending on the pueblo, the tribal government could change any where from an annual basis to every two years. As is the case with any other tribal program, the importance and priority of the TVN was subject to change with each new administration. In tribal communities, the TVN was competing for scarce resources with a number of programs addressing the issues of healthcare and education. Therefore, some of the members faced the substantial challenge of selling the technology and its potential usefulness to the community. Several events were conducted that drew in community members for educational programs as well as a ribbon cutting opening ceremony that was attended by tribal leadership. Nonetheless, it was noted by one consortium member that the TVN is largely unnoticed by most of the tribal community members.

“Outside of here, with the average community resident, they really don’t understand what this is all about.”

“Not on the radar screen.”

The role taken by the local tribal government has varied. In some situations, the local communities changed their priorities and, consequently, the program emphasis of the local TVN had to change. For example, in Jemez the technology was originally intended for use by the Tourism department. However, when it became obvious that logistically, it would be difficult for the Tourism department to acquire internet connectivity, the technology and program emphasis shifted to education. In Zuni, the technology was originally intended for the local museum. Priorities changed when key personnel were no longer working at the museum and the remaining staff lacked either the training or desire to proceed with the project. At the same time, the tribe hired personnel in Information Technology who had the desire as well as the necessary skills and training to move the project forward.

Implementing a program like the TVN in a rural state like New Mexico presented challenges as well. Providing Internet connectivity to remote communities came at a significant cost. While all the communities were appreciative of the equipment and the connectivity, it became apparent the bandwidth provided by the T1 lines was insufficient for some of the original plans, while the cost of T3 lines was prohibitive. The limited bandwidth affected the video and audio transmission, and while new equipment and software was provided to mediate these problems, bandwidth continues to present barriers to

the TVN members. During her visit to the sites, Jennifer Tieg von Hoffman commented that the bandwidth constraints were significant and could interfere with socialization and communication across the AG. In addition to inadequate bandwidth, the remoteness of the communities and New Mexico's telecommunications infrastructure contribute to less reliable connectivity and power outages that inhibit usage of the technology. One member noted that even with adequate bandwidth, there will be issues with signal transmission across different companies' systems.

Another challenge for the consortium members was in the need to reassess where the AG node should be physically located. Upon reassessment, several communities found that larger rooms or facilities were needed to fully use the AG. One consortium member renegotiated with the tribal administration for an AG room after having lost it earlier to another program. Another consortium member arranged to obtain wireless networking that enabled their moving into a larger facility. Two other consortium communities want wireless configurations to conduct classes over the AG and to take the technology out into the community, but have not yet obtained it.

Community receptiveness and Readiness for the Technology:

The communities' readiness for the technology is important to consider. For example, the communities lacked an overall lack of knowledge about the technology's capability – specifically, what it could and could not do and that learning is still in progress. Tribal community members were introduced to the technology and participated in AG sessions through a number of educational

presentations and a Blue Ribbon Cutting Opening Ceremony. The presentations included diabetes education and prevention in collaboration with the American Diabetes Association for the community elders, fire prevention and safety for school children with AMERIND Risk Management, preservation of the Apache language presentation, and an artist's presentation. The Blue Ribbon ceremony was attended by tribal leadership as well as a state legislator. While it has been noted that only a small percentage of tribal members know about the technology and have interacted with it, it has been well received by those few who have attended these sessions.

Among the consortium members there is a general consensus that most tribal members and even some in leadership positions do not know about the technology or its capabilities. One member noted that the computers and Internet access are most frequently used by younger tribal members. Also, noted is a general lack of receptiveness from the more traditional members. This receptiveness has also been perceived as a lack of trust by several members.

One member noted:

"They don't know this technology is available. When we show it to them, they... it doesn't have their trust, I guess you would say. They don't -- they wouldn't want to be around anything that they don't trust. They don't want to be around it...They're probably afraid that it might be used against us or some people are afraid of cameras or being seen on TV, and that's probably why."

Another consortium member noted a significant difference in world views on what this technology means, and that there is:

"...an innate suspicion and fear that results in people being hesitant to fully embrace it."

The communities' reception of the technology has been described as an awareness that something is "going on" at the various tribal offices, with little or no awareness of what the technology can do for the communities. Tribal councils and leadership may be aware, but there is little awareness in the community at large.

Lessons Learned and Advice:

The consortium members were asked what they learned as a result of participating in the TVN and what advice could be given to groups embarking on a similar project. Many of the responses centered on the need to conduct a pre-implementation feasibility study to better analyze the technical infrastructure and staffing requirements of this type of program. Consortium members recommended a more thorough analysis of the AG that would include a more realistic estimate of bandwidth requirements, the hardware and software requirements and the availability of other AG nodes in New Mexico and worldwide. One member suggested that the analysis include looking at the computer expertise and salary requirement of node operators, as well. At the completion of the project, all the sites reported having competent computer staff; however, one site was not able to hire qualified staff until well into the project's implementation. Another member suggested that the project would have been better served with wireless configurations that would allow more

taking the AG node into the community to enable more community usage, as well as marketing.

Several consortium members noted the need to set goals that were realistic and compatible with the capacity of the technology. As the members learned more about the AG, it was apparent that more funding, equipment and training was needed to accomplish their original goals.

Several members noted the need to hire a “dedicated staff person” for each community whose primary responsibility was to coordinate the TVN. This person would be responsible for establishing partnerships for programs, identifying potential opportunities for collaborations within and outside the community, and using the equipment frequently to become competent on the AG.

Two consortium members suggested more community involvement in TVN matters. One alluded to the need to “tie in” with influential community members and resources in the community. Two members suggested the development of a community advisory group to get a larger circle of people who are knowledgeable about the project and who would tell others about it; and to promote ownership by getting more input about what’s important to the community. One member commented that it would be better to bring into the “communication circle” those individuals who could help plan the programs and then go out into the community and tell others about the technology.

The members had varying opinions about the role an institution like UNM should play. One member recommend future consortiums should not include large fiscal and administrative agent, as having the fiscal agent merely adds an unnecessary layer of bureaucracy and that the project could be managed by the communities. Other members advocated for UNM taking a more active role in managing the project. One member suggested that an organization like UNM needs to establish the expectations for participating in the consortium:

“And I believe that comes down to the expectation, again; if everybody has a clear objective of what they need to do as it relates to the expectations that their community needs to provide or at least to assist in, then nobody is wondering or left hanging.”

UNM left the decision as to how to use the technology to the communities. Several members remarked that there were unclear expectations as to how the technology should be used and expressed a need for more direction and coordination from UNM. One member suggested more goal setting and strategic planning.

Two consortium members suggested having more face-to-face meetings that would facilitate more relationship building that the AG meetings allowed. One suggested having at least one group meeting every few months and holding more individual meetings. One member suggested developing an AG meeting communication protocol as a way to indicate that one has finished speaking. This member referred to the tendency of Native people to have long pauses in conversation that may be misread or hard to determine if the speaker is finished or just pausing, and that it is particularly hard to make that determination when conducting meetings via the Internet. The member commented on the

community presentations at the ribbon cutting ceremony wherein the members were prompted by each community saying “That’s all I have” and Dr. Williams would then indicate the next community to speak as an example of a communication protocol.

“Indian people have -- there’s a pause time between their sentences; when you finish a sentence, then you pause and start your next sentence. They say the Anglos’ pause time is probably like this (indicating a small space). You know, it’s really short. Most of us, it’s probably like this (indicating a larger space). So, you know, there’s a big pause time. So when someone’s finished their sentence, we kind of wait to make sure that we’re not rude and we interrupt.”

“So that’s what I’m saying about the protocols in this. You know, we know that whoever’s chairing the meeting, they would probably have to draw it out, kind of set it up, so like you know, maybe Zuni will speak first and then Jemez and then, you know, kind of set it up so that we know that when our turn comes, then we can say it.”

Discussion of Findings

Each site has varying views on goal accomplishment and success. The successes were most often described in terms of the technology – obtaining the equipment and setting up the network. The TVN project has been described by some consortium members as a “learning as you go” process, as the communities have become increasingly more knowledgeable and aware of the potential benefits, as well as the infrastructure requirements of the technology. The priority shifted from program planning to getting the network up and running and maintaining the network. While meeting these requirements did slow down the pace of the project, substantial accomplishments have taken

place that included setting up community computer labs and providing educational presentations for the community

As this project comes to an end, the consortium members all expressed their gratitude for having the opportunity to participate. As to whether the network will continue, members expressed hope that it would be maintained. The members are either in the process of re-negotiating the costs of their T1 lines or have completed negotiations.

It was unclear as to how involved UNM should have been in the overall administration of the TVN. While one member felt their presence added to the layer of bureaucracy, others felt the need for more direction and coordination from UNM, particularly in the areas of program development, goal setting, and meeting deadlines.

Community involvement, and in some situations the lack thereof, played an important role in the TVN implementation. Due to the tribal communities' scarce resources, technology programs need to address the communities' most pressing needs. It is important to engage the community by seeking their input as to what they determine as priorities. The TVN project did not directly provide for that community engagement. Also, the introduction of technology into traditional native communities needs an advocate or a champion who is positioned to advocate for the program with tribal leadership and decision makers.

Implications for Replication

Communities or organizations in tribal communities need to consider the following when implementing a similar program:

- Staffing should include a person whose primary responsibility is bringing and marketing the technology to the community, getting community buy-in, and administering the program.
- Any implementation needs to take into account that the tribal communities are sovereign nations that may have restrictions on hiring staff persons and developing the needed technological infrastructure.
- Communities should conduct a thorough feasibility analysis before embarking on a project like the TVN. This analysis would include a realistic estimate of bandwidth requirements, the hardware and software requirements and the availability of other AG nodes in New Mexico and worldwide. One member suggested that the analysis include looking at the computer expertise and salary requirement of node operators, as well.
- Develop a community advisory group. This would allow the project to form alliances with influential community members and resources in the community. This group or committee would serve to enlarge the circle of people who are knowledgeable about the project and who would tell others about it; and to promote ownership by getting more input about what's important to the community. One member commented that it would be better to bring into the "communication circle" those individuals who could

help plan the programs and then go out into the community and tell others about the technology.

- Demonstrating the benefits and capability of the technology to key decision makers and funders will be key to the future of this or any other consortium. As education and public health issues are foremost in many tribal communities, it will be important to emphasize how distance learning opportunities would enhance education and public health initiatives.

APPENDIX A:

Interview Protocols

Summer 2004 Interview Questions

1. How have you been able to use the technology in your organization and in your community?
2. If you had everything you needed, how would you like to see this technology used in this community?
3. What, if anything, is keeping you from accomplishing your future plans?
4. How can the UNM TVN staff support what you want to do?
5. How are the AG meetings going? What kinds of things do you usually talk about?
6. Do you have anything you want to add?

Interview Questions for Winter 2005

1. Looking back on the past years with the TVN, to what extent have you accomplished your goals? What would you identify as successes? What facilitated those successes?
2. What advice would you give other organizations embarking on a similar project? What, if anything, would you do differently?
3. What do you see as challenges that are particular to a project like the TVN?
- such as working with several sovereign nations on one project and implementing technology in a rural state.
4. How ready was your community was for the TVN technology in terms of needed technological infrastructure, awareness of what the technology could do, etc.?
5. How well has the technology been received by your community?

APPENDIX B:

Interview Transcripts

**(Transcripts sent via email to the
Department of Commerce in zipped files)**