Broadband Connectivity in Wireless Country - The Gates Foundation and OnSat Communications Network Native American Access to Technology Project

Two years ago, the Bill & Melinda Gates Foundation started a grant program specifically designed to meet the information needs of Native Americans living in New Mexico, Arizona, Colorado and Utah.   Three goals were established for the program:
- Empower Native communities by providing access to digital information resources and the Internet
- Increase usage of tools and technology for creating and preserving local culture and language
- Increase opportunity for digital skill acquisition

To achieve these goals, the program was structured into two phases- the first focused on getting computers and connectivity to the local communities within the grant region, the second on providing second level training facilities and hosting services for community use in centrally accessible areas. A breakdown of the program for each of these phases is as follow:

Phase One (2000-2001)
Basic Access to Technology Grants
- 2-4 public access workstations
- Peripherals – digital camera, scanner, microphone, printers
- Internet connectivity
- On-site training
- Technical support

Phase Two (2002)
Content Creation and Storage Grants
- Server for archiving / web-hosting
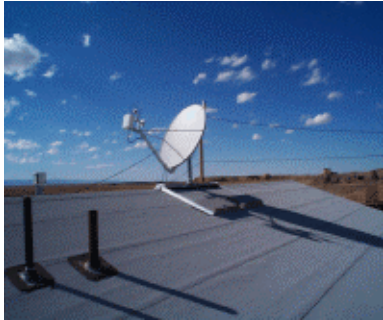Community Lab and Trainer Internship Grants
- Training lab
Tribal Support Organizations Grants

One of the biggest challenges in the initial stages of the program was the lack of infrastructure available to the Native American community in the Four Corners area. For example:
- 22% of Navajo households have telephones
  - 47% of Native households on reservations have telephones
  - 94% of American households have telephones
- 15% of Native household have computers
- 10% of Native households have access to the Internet

After initial efforts to work with local telecommunication providers to come up with solutions for remote sites failed, the Foundation partnered with OnSat

Network Communications to provide an innovative, cost-effective combination of satellite and local loop wireless as a solution. The current program is providing high-speed connections through satellite to each of the 165 sites covered under the program, using solar power donated by the Solar Electric Light Fund for off-grid locations.

Internet connectivity is now available at local speeds of up to 256k down and 64k up at each of the sites, through a shared 4Mb down, 192k up dedicated service. The satellite dish and router are installed by OnSat, and connected to public access computers provided through the Foundation grant in each of the 165 sites. Training is also provided to the local residents at each of the sites by the Foundation, both for basic computer operations and for use of the Internet.

As a follow-on to the Foundation project, OnSat is working with the Navajo Nation to provide wireless local loop extensions using 2.4 Ghz, 802.11B wireless cards from the original site to network in additional computers at some sites.

One of the keys to making this program work was the development of a payment structure that would allow the local sites to continue service following termination of the grant, using their own resources. OnSat, working with the Foundation, was able to come up with an innovative pay-as-you-go approach, which allows each site to decide how much access they can afford at any given time, and pay directly for that through a web-based transaction service. A flat monthly fee of $100 was established for full time connectivity for up to 10 concurrent users, but if a site needs or wants a less than full time connection, they are able to do so at $0.05 per minute with no minimum usage. Even if a site is disconnected for some time, they are still able to access a shared cache of web pages recently visited by other sites, enabling a minimal level of service without any cost whatsoever.

Throughout the entire process, representatives of the tribes were closely involved in making the decisions associated with this project, and have been included in the installation and troubleshooting process to make sure that the technical infrastructure will have local support when the grant period ends.

Additional information on the Native American Access to Technology Program of the Foundation can be found in a recent article from Computers in Libraries at http://www.infotoday.com/cilmag/oct01/dorr&akeroyd.htm. A description of the OnSat Network Communications solution can be found at http://www.onsatnet.com/html/libraries/libraries.html. Projects funded by the Solar Electric Light Fund can be seen at http://www.self.org/projects.asp.