



# Delivering effective wireless infrastructure to the Karuk Tribe

**Intelligent application of broadband technology helps social cohesion and economic development**

## THE CHALLENGE

Located along Highway 96 in Humboldt County, the community of Panamint, which is now called Orleans, CA, has suffered from poor utility services for many years. There is only a single power feed and power outages are commonplace. Regular telephone service also has a single source, and periodically fails with no dial tone available to the entire town. Currently, the community is not served by any applicable broadband service.

The Karuk Tribe maintains several offices in Orleans, including the Department of Natural Resources, Temporary Assistance for Needy Families (TANF), behavioral health services, a computer centre, a library, senior and elder services, and the only healthcare clinic available to the community of Orleans. All of these services suffer from the poor telephone and broadband connectivity. Other facilities suffering from lack of adequate Broadband

service are the local Fire Department, Forest Service, Community Services District, Karuk Community Development Corporation, Karuk Housing Authority, Orleans Elementary School and the Headstart program for early Childhood development.

The healthcare clinic has experienced telephone failures during emergencies, rendering 911 services unavailable. The community computer centre has the equipment to offer distance

education classes, but the Internet connection necessary for this resource is not available. Many of the Karuk Tribe's neighbours in and near Orleans also face these issues arising from poor telecommunications.

The County Sheriff has difficulty contacting field units and coordinating emergency services. The local schools share very small computer labs that often operate on dial up connections. The neighbouring towns of Weitchpec and Hoopa, belonging to the Yurok and Hoopa Valley Tribes respectively, also have limited broadband and poor telephone reception.

An Orleans elementary school teachers stated "The difficulty we have with the limited access to Internet is when teaching. What would take a standard class 15 minutes to cover takes our class 45-60 minutes to complete, this means each class session we learn a lot less than we could if we had adequate Internet access."

## THE DATASAT SOLUTION

The Datasat system being installed will provide high speed broadband to critical institutions, businesses and residential users as well. This solution is interoperable, secure, provides communications among first responders and allows for shared access among schools, libraries and adult education programs. In addition, it provides business connectivity at scalable speeds. The system supports assignable bandwidths per user ranging from 1 to 100 Mbps. The user may access the wireless network using a PC, smart phone or other WiFi enabled devices. Voice over IP (VoIP) and smart phones can also operate over this network providing extended cell phone reach where none is found. For Orleans this crucial, as early as a couple years ago a community member came home to find her house on fire. She tried over and over to call 911 and due to no cell coverage in the valley she was unable to connect the call and watch her house burn down over the course of

an hour. After the fire completely destroyed her house she finally was able to reach first responders however it was too late. A VOIP service for cell phone use would have solved this problem.

The technology employed is based on the 802.11n standard and can be powered using solar-arrays (panels) where electricity is unavailable. This technology brings a carrier grade approach to WiFi deployments. The solution uses interoperable IP/Gigabit Ethernet interfaces and co-exists with fibre, microwave and other transport mechanisms.

To address these issues, the Karuk Tribe has assembled a team of specialists and vendors from its staff and companies across the nation.

With funding from Datasat, this team has coordinated their efforts to submit an application to the USDA Rural Utility Services Community Connect Program and, in August of 2011, the Karuk Tribe was awarded



**The Karuk Tribe is a North American sovereign indigenous people who have lived on their ancestral land in what is now recognized as Northern California and Southern Oregon. As a self-governing and federally recognized tribe, it promotes the welfare of all Karuk people and the restoration and improvement of their native territory. The traditional lands of the Karuk Tribe are located in rural and frontier environments, often lacking in basic utilities and services necessary for successful healthcare, education, safety, economic development and governance.**



## The Datasat Technical Solutions includes:

- High speed broadband access
- VOIP phone and cell phone services
- High bandwidth fibre connectivity
- Robust outdoor wireless network
- Reliable communications service for consumer and business users
- Responsive and available infrastructure for education, emergency and first responders

\$1,141,870 in order to become a Wireless Internet Service Provider (WISP) to the Orleans community.

Tribal Directors from the Yurok Tribe and the Karuk Tribe have cooperated to discuss the overall telecommunication requirements of the region, rather than limiting their focus to the needs of each individual town or tribe. Using the resources already gathered for the Community Connect Project, the two tribes propose to form a Cooperative Telephone and Internet Utility Company (under the Karuk CLEC) to serve any and all un-served and under-served communities along Highway 96, and potentially to areas geographically adjacent to Highway 96.

This Tribal Cooperative seeks to provide telephone and Internet services immediately, with the intent to provide cellular, media, and other services once established. The two tribes have partnered with EnerTribe and Datasat under a California Advanced Service Fund (CASF) Grant to fund this effort and deploy wireless

broadband and fibre to every community within and near the Karuk and Yurok tribal territories. Latest news from the CASF grant reviewers is that they have made a formal recommendation for the California Public Utility Commission to fund this project. Final award announcement is pending end of summer.

### THE RESULT

The project will ensure that community anchor institutions, businesses and residents of the targeted rural isolated community have high speed broadband Internet access. High speed broadband Internet can be the catalyst for dramatic, positive changes in even the most rural, isolated communities. High speed broadband Internet breaks down barriers and enables rural residents to participate in economic and civic life far beyond their geographic region.

Communications made possible by the Datasat broadband technology eliminates the logistical constraints of

regionally-based business models, allowing businesses in isolated areas to compete with their big-city counterparts. Ultimately, the numerous economic and social advantages enabled by the availability of high speed Internet in rural areas benefits the entire country.

When given access to affordable broadband, rural businesses restricted to local markets, even the smallest business operations - including home businesses - can expand their market reach across the nation and even around the world.

Broadband brings the opportunity for direct access to education and healthcare for rural residents who are otherwise forced to travel long distances for courses and medical treatment. Broadband access rural community anchor institutions can increase use of community facilities. For example, rural libraries newly enhanced by high speed Internet generally experience a resurgence of community interest and participation. High speed Internet provides rural

residents access to global information and cultural resources.

There are many facets to this project, while the grant award was back in 2011 the tribe has only just managed to get through portions of the permitting needed to proceed. The goal is that the Community Connect project will be complete by late Fall of 2013.

Whilst this project is incomplete, there are two Datasat radios already deployed providing a crucial link between the Orleans Community Centre to the Orleans Computer Centre for the Elementary school children and local community to get online for educational purposes. This link is a temporary deployment and is but a glimpse into what the entire Datasat network will provide in terms of functionality and throughput for the community. Once the network is installed and complete the tribe will have a great foundation to build the Orleans community on in terms of Distance Education, Tele-health, Communications, Business Development and Increased Economic Health.

"The Community Connect project, although not complete, is already a success for Native American

Territories as a whole and the Karuk tribal Territory," commented Forest James, CEO EnerTribe. "I have seen the Yurok and Karuk tribal council members partner together to accomplish a single goal, to bring Broadband to our aboriginal territories. It is a beautiful thing to see our sister tribes pull together and achieve such a critical piece of economic structure. Datasat has been crucial in making all this possible."

"Determining the needs of citizens is an inherent right of self-governance. The Karuk Tribe seeks the necessary resources to serve local communities and provide vital infrastructure to the lands within the Karuk native territory," concluded Eric Cutright, IT Director & Project Manager Karuk Tribe.

"The lives of those affected will be enriched through improved education and healthcare, better public safety, more economic growth opportunities, and access to information and resources available only via the Internet. The Karuk people, by joining together with neighbouring tribes, will set in motion an endeavour that provides greater quality of life for their families in the present day, and also for the generations that follow," he concludes.



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