

TELECOMMUNICATIONS AND INFORMATION SYSTEM HISTORY OF ALASKA

Alaska was essentially without either wireless and wire telecommunications until the Gold Rush began in 1898. In 1864 a route connecting to the states and westward to Nome was surveyed by the Western Union Telegraph Company as part of a grand plan to connect Europe to North America by telegraph but the successful laying of cable across the Atlantic eliminated this effort. The Gold Rush in Nome led to an expansion of the Army presence along the Yukon and in western Alaska. The job of connecting the new outposts at Eagle, Valdez, Tanana, St. Michaels and Haines was led by Lt. William Mitchell, later known as General Billy Mitchell the pioneer of Army Aviation. The project was known as WAMCATS, (Western Alaska Military Cable and Telegraph System). Canada had already built a telegraph line to Dawson completed in 1903 over the route surveyed in 1864. This permitted overland communication with the states. The Alaska Communications System was created and connected to Seattle by cable in 1905 and served Alaska as its long distance carrier until 1970.

World War I led to a general depopulation of Alaska's non native residents thus there was little impetus to expand telegraph, telephone or radio service either by the Army or the private sector. World War II changed all that as 250,000 army personnel were moved into Alaska to counter the Japanese thrust at the Aleutians. The Civil Aeronautics Administration (CAA) made major investments as well as the Army. By 1945 radio teletype and high frequency communications, voice and morse code, were available at 125 sites in Alaska. This system largely ignored communications with civilians not in either the military or the CAA. Only in the major communities was telephone service available and it was extremely expensive for non government users. This led to an vigorous ham radio community in Alaska which often served to connect to telephone service in the states.

A change from HF to microwave began with the beginning of the Cold War in 1948. The construction of the DEW line and expanded needs of CAA stations led to microwave connections throughout the state, but only to military and CAA sites and large communities. There were still 200 villages without telephone service, served by radio to the schools. Meanwhile, television became available in Fairbanks and Anchorage in 1954 but there was no direct link to national networks and their programming arrived by air a day late.

In 1964, the question of employing village health aides became a major priority for the federal government. Initial contacts were by radio to most health aides and they had to be brought to regional centers for training. This led to Alaska being incorporated in the Applied Technology Satellite 1 (ATS-1) project for telehealth and distant education experiments. The project was begun in 1969 and served 26 villages with voice only. The project was operated by the Alaska Department of Education, the University of Alaska Fairbanks, and Stanford University with some independent consultancies. The project was generally successful by providing a level of voice service never available to the small communities before. Teleconferencing between teachers and between health aides was especially popular.

Meanwhile the U.S. Department of Commerce was busy selling the Alaska Communications Service to RCA. The Federal Field Committee for Development Planning in Alaska provided local backup but the

sale was generally run by headquarters in Washington, D.C. RCA agreed to provide one public telephone in 149 communities that had no service except radio.

In 1973 the State submitted a proposal to take part in the ATS-6 program designed to bring television to small communities. The program began in 1975 with one channel to 16 communities. It was very successful for the year of its operation and the villagers were sad to see it moved to serve 4500 villages in India in 1976.

Meanwhile, RCA was not proceeding vigorously with implementing rural service by microwave or any other means. Because of the expectations created by the ATS projects, the new Hammond Administration in Alaska created a special working group chaired by the Commissioner of Highways who had been involved with the ATS projects and the RCA sale. When RCA refused to employ the small earth stations (VSATs) developed in the ATS projects, the legislature in 1975 appropriated \$5 million to buy the VSATs and the State indicated strongly that RCA should accommodate them on the upcoming SATCOM satellite due to be launched in December 1975. RCA agreed to this even though they had only about 90 days to make the necessary changes in the Satellite.

The exposure to rural Alaska to television through ATS-6 developed a strong desire for television throughout the rural parts of the State. The legislature told the Governor's new Telecommunications Director that they wanted a TV channel as soon as possible. Since the new director had been one of those who developed the ATS-6 proposal, he was able to convince RCA that they should find a channel on SATCOM to do the job, which they did while making plans to sell their Alaska system, including SATCOM 1 to Pacific Power and Light, a Portland based corporation, the sale occurring in 1979.

The launch of SATCOM 1 expanded the network formed in ATS-1 to 175 communities and made possible the development of telehealth and distant education to levels undreamed of before. In 1979, the Alaska Department of Education and the University of Alaska began development of the Learn Alaska network designed to serve the entire state with distant education at every level. This network was soon attracting from those around the world, especially Africa and South Asia, with interests in expanding their education systems via satellite. Unfortunately, the collapse in oil prices in 1985 led a drastic reduction in funding for Learn Alaska. The staff was rapidly hired by other universities and states and Alaska lost a large part of its world leadership in distant education.

Several people involved in the ATS projects began to form GCI in 1979. The firm now claims 45% of the long distance service in Alaska. It has cable from Seattle to Anchorage, Juneau, Fairbanks and Prudhoe Bay beginning in 1991 and greatly expanding in 1998.

ATT bought ALASCOM in 1995. ALASCOM has launched three satellites; Aurora I in 1982, Aurora II in 1991 and Aurora III in 2000. All three satellites are devoted to providing telecommunications services in Alaska. ALASCOM also provides service to the Russian Far East for aviation communications via satellite.

The Alaska Communications System (ACS) was formed in 1998 and because of its extensive local telephone holdings is the largest integrated communications provider in the state; providing service in

74 communities. In 2002, ACS, the State of Alaska and the University of Alaska entered into a five year \$92 million telecommunications partnering contract that calls for ACS to provide a broad range of telephone, long distance, cellular, internet and satellite services to state agencies and the University.

The State formed the Telecommunications Information Council (TIC) in 1988 by statute. It is charged with developing policies related to telecommunications and information technology. Membership can include the Governor, Lieutenant Governor, all department Commissioners, representatives of the Court System and the Legislative Affairs Agency, Two legislators, one from the House and one from the Senate serve as non-voting members. There are several committees provided for, including; policy, technical advisory, emergency communications, geographic information, electronic signatures and security and privacy. In 2002 the TIC was transferred by the Governor to the Alaska Department of Administration and in 2005 it was abolished by executive order. A Telecommunications Users Advisory Consortium has been established under the Chairmanship of the President of the University of Alaska and consortia dealing with telehealth and with libraries also have been established.

A partnership was formed between the Gartner Group, the State of Alaska and the University of Alaska led to the creation of an online technology training program for University of Alaska students and state employees. Other special projects were formation of a videoconferencing system to serve state agencies, working to privatize state-owned telecommunications networks when possible, and cost efficiencies for rural television.

The Denali Commission conducted a survey on rural telecommunications which provided cost information on telephones, cable television and internet for every village in rural Alaska. The Alaska Science and Technology Foundation approved a pilot project to place information technology apprentices in Alaska companies.

Telemedicine received a great impetus in 1998 when large federal appropriations were made to develop very sophisticated broadband access to village health clinics. This system has already been exported to Ugra Oblast and the Sakha Republic in the Russian Federation.

Distant education in Alaska has benefited from a federally sponsored E-Rate subsidy program that made possible a build-out of internet services to many rural schools and libraries. Without these subsidies in telemedicine and distant education it would have been difficult for the state to continue to make progress in providing internet services to extent it has been able to achieve them.

In 2000, the Federal Aviation Administration, the Arctic Research Commission and the Institute of the North brought together for submission to the Arctic Council a program then titled the Circumpolar Infrastructure Task Force to concentrate on transportation and telecommunications in the circumpolar regions. This was approved at the end of the Finnish Chairmanship in 2002. In 2004, the Arctic Council created a demand for an Arctic Information Communications Technology Assessment. This is still underway and operated by the University of Alaska Fairbanks and the Institute of the North.

Alaska has already made significant advances in providing rural broadband services in health and education. Hopefully, it will continue to develop the system to service businesses and homes throughout the State.

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