



Rural Internetification

Hermiston occupies 700 square miles in the high Oregon desert, a rural community much like the rest of America. It is the home of the Umatilla Chemical Depot and Disposal Facility, a fact which clever volunteers leveraged into the world's largest WiFi cloud. They took the disaster communications money the depot was required to provide volunteer firefighters and invested it into WiFi for disaster communications, education, civic infrastructure, and local business.

Hermiston shows how people, capital, and spectrum can come together to create a rural internetification effort modeled on the rural electrification efforts of the last century. Rural electrification changed the lives of all rural Americans. Indeed, it was seeing the effect of electricity on the day-to-day lives of rural women in the Texas hill country that turned Lyndon Johnson into a dedicated liberal who believed government could change lives.

Access to Spectrum: Repurpose the Amateur Radio League

Much has been written about better use of spectrum, from the use of whitespace in rural areas to more general-purpose access mechanisms such as WiFi. Access to spectrum based on protocols, not on property rights, moves the airwaves back into being a common resource. WiFi is an example allocating spectrum for general-purpose access based on protocols. But, it requires a permanent allocation of spectrum, always a difficult task.

There are two situations in which more flexibility makes sense. First, in times of disaster, we should be able to access more spectrum to provide emergency workers with better communications. Second, in rural areas much of the spectrum lays fallow, with at most one or two television stations occupying the airwaves used by dozens in the more urban areas.

While one could reallocate the spectrum on a permanent basis, another tact would be to repurpose the Amateur Radio movement for the modern era. Amateur radio is based on the bargain that if an individual demonstrates technical competence and a commitment to public service, they are allowed additional transmission privileges. By updating those transmission privileges, for example allowing a Class 1 Wireless Engineer to access unused portions of the television spectrum in rural areas for use in civic, emergency, and other cooperative systems, one could quickly begin to deploy a new class of protocol-based communications solutions.

Access to Capital: Create a Rural Internetification Administration

In rural Oregon, community-based organizations have always been a way of life. Volunteer fire departments, community ambulance service, and rural electrical coops are spread throughout the state. Hermiston was lucky enough to have a toxic waste dump and clever enough to redeploy the required disaster communications funds into a community-based WiFi system.

The Rural Electrification Administration (REA) shows us how the Hermiston example could become national. President Franklin D. Roosevelt created the REA in 1935. The REA provided swift action: by 1939, 417 rural electrical cooperatives were in operation. Many of these rural coops are still thriving, and by the 1970s, 98% of rural Americans had access to electricity.

The REA provided long-term financing for rural electrification cooperatives. Two points are worth noting about this financing. First, the coops paved the way for commercial operators, and today rural America has a mix of cooperative and for-profit providers. Second, over the 40-year life of the REA, \$9.8 billion in financing was provided. The remarkable thing about this financing is that the total bad debt for the program was only \$44,478 over the entire 40 years.