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2024-04-05 the life of one earth station

Sometimes, when I am feeling down, I read about failed satellite TV (STV) services. Don't we all? As a result, I've periodically come across a company called AlphaStar Television Network. PrimeStar may have had a rough life, but AlphaStar barely had one at all: it launched in 1996 and went bankrupt in 1997. All told, AlphaStar's STV service only operated for 13 months and 6 days.

AlphaStar is sort of an interesting story on its own. Much like the merchant marine, satellites are closely tied to the identity of their home state. Many satellites are government owned and operated, and several prominent satellite communications networks were chartered by governments or intergovernmental organizations. Consider the example of Inmarsat, a pioneer of private satellite communications born of a UN agency, or Telesat, originally a Crown corporation of Canada. As space technology became more proven, private investors started to fund their own satellite projects, but they continued to operate with the imprimatur of their licensing state.

AlphaStar was sort of an oddity in that sense: a subsidiary of a Canadian company set up to offer an STV service in the United States. Understanding this situation seems to require some background in the Canadian STV industry. 1995 saw the announcement of Expressvu, a satellite television service by telecom company BCE and satellite receiver manufacturer Tee-Comm. Canadian satellite operator Cancom would provide the space segment, and Tee-Comm the ground segment.

Expressvu looked to be headed directly for monopoly: despite attempts by a coalition of Montreal company Power and Hughes/DirecTV to launch a competing service, only Expressvu could meet a regulatory requirement that Canadian broadcast services be served by Canadian satellites. Power's efforts to change the rules involved considerable political controversy as politicians up to the prime minister became involved in the back-and-forth between the two hopeful STV operators.

Foreshadowing Alphastar, both potential Canadian STV operators struggled. Neither Expressvu nor PowerDirecTV would ever begin operations as originally planned. While regulatory uncertainty contributed to schedule delays, and the complexity of still relatively new satellite TV technology drove up costs, one of the biggest problems was a lack of satellite capacity. Most Canadian communications satellites were launched and operated by Telesat, and in the mid '90s Telesat's fleet fit onto a small list. Expressvu had been slated to use a set of transponders on Telesat's Anik E1, but in successive events Anik E1 lost a solar panel and then several of its transponders.

The lack of Canadian satellite capacity created a regulatory conundrum for Canadian STV: Industry Canada was requiring that operators show they had access to satellite capacity in order to obtain an STV license. No capacity was available on Canadian satellites, though. For STV to become available at all in Canada, some compromise needed to be found.

PowerDirecTV and a new satellite venture by Shaw Communications applied for an exception,

allowing them to use US satellites until transponders were available on Canadian satellites. Industry Canada was reticent to approve the arrangement, considering the uncertainty over what satellites could be used and when.

As Expressvu failed to get off the ground, several of the partners in the project backed out, and Tee-Comm decided to set off on their own. Considering the licensing situation in Canada, they devised a clever plan: they would launch an STV service in the United States. Such a service, delivering US-made content to US customers, could clearly be served by US-owned satellites according to Canadian policy. But it would also secure long-term satellite carriage agreements and fund the construction of infrastructure. When Tee-Comm later returned to apply for an STV license in the Canadian market, they would have fully operational infrastructure and an existing customer base. They could make a far stronger argument that they would be a reliable, affordable service that could transition to Canadian satellites when capacity allowed.

So Tee-Comm started AlphaStar.

AlphaStar carried over several signs of their Canadian origin, including the basic broadcast technology. They would broadcast DVB-S, the norm overseas but new to the United States where DirecTV and the Dish Network used their own protocols. With DVB-S and more powerful Ku-band transponders on AT&T's Telstar 402R satellite, AlphaStar customers needed a 30" dish---smaller than the C-band TVRO dishes associated with earlier STV, but still larger than the 24" and smaller dishes used with DirecTV's DSS.

Of course, satellite feeds have to come from somewhere. AlphaStar purchased an existing earth station in the town of Oxford, Connecticut and adapted it for television use, adding TVRO antennas to receive programming alongside the large steerable dishes used to transmit to the satellite. An on-site network control center ensured the quality and reliability of their television service; corporate headquarters were located nearby in Stamford.

They never signed up many customers. There may have been a high point of around 40,000, but that wasn't enough to cover the cost of operations. Tee-Comm had barely received authorization to launch the Canadian version of the service (AlphaStar Canada) when they went belly-up in both countries. AlphaStar in the US managed over a year, but AlphaStar Canada only made it a few months. In the mean time, the old Expressvu project, minus Tee-Comm, had finally lurched to life. Expressvu went live in 1997, and the AlphaStar story was forgotten.

During the bankruptcy proceedings in the US and Canada, the courts solicited bids to take over AlphaStar's assets. These included, according to a document prepared by AlphaStar, their Oxford earth station which had been built for the Strategic Defense Initiative and hardened to withstand nuclear attack.

See, this is where I really got interested. An SDI satellite earth station in Oxford? What part of SDI was it built for? I started hunting for the location of this earth station. Not far from Oxford I found an obvious candidate, an isolated facility with a half dozen large, steerable antennas. But no, it was built by Inmarsat and is operated today by Comsat (also originally government-chartered).

Finally, digging through FCC rulings, I found an address: 66 Hawley Road. There was nothing to see there, though, just a tilt-up warehouse for a bearing company that showed no signs of satellite communications heritage. It's funny, Google Maps itself intermittently shows images from before or after the bearing company moved in, but I never noticed that. It took Department of Agriculture aerials from the '90s for me to realize the address was correct; the earth station was demolished just a few years ago.

There are few photos of the building. The best I've seen, from a marketing presentation from one of AlphaStar's successors, is only a partial view. The building doesn't look to be nuclear-hardened, though. It has a glass-walled lobby, and no sign of blast deflectors on its ventilation openings. It seemed like it had been renovated, though. Perhaps they tore out its original hardened features?

Historic aerial imagery tells a story. The facility was first built sometime in the 1980s, and in the early '90s featured two large, likely steerable antennas. They were in the open, not enclosed by radomes, an observation that points away from a military application. It is a fairly simple matter to estimate the altitude and azimuth of a satellite antenna from aerial photographs, so antennas used for military and intelligence purposes are almost always kept under inflatable cover.

In the mid-'90s, around when AlphaStar moved in, small antennas proliferated on the site, peaking at probably a dozen. By the turn of the millenium the antennas receded, dwindling in number as the largest were demolished.

AlphaStar's remains were purchased out of bankruptcy by Egyptian telecom entrepreneur Mahmoud Wahba, who operated them as Champion Telecom Platform. Champion was a general-purpose satellite communications company, but took advantage of the network control center and television equipment at the Oxford facility to focus on television distribution. Making the record a bit confusing, Champion advertised many of its services under the AlphaStar name. They seem to have been reasonably successful, but never attracted much press.

Still, there were interesting aspects to the business. They offered a service where Champion used their small network of earth stations to receive international channels, streaming them over IP to cable television operators who could beef up their lineup without the cost of added headend receivers. At one point, it seems, they even provided infrastructure for a nascent direct-to-consumer IPTV service. They offered the Oxford network control center as an amenity to their earth station customers, and had relationships with a few national television networks, likely as a backup site.

Champion had a better run than AlphaStar but still faded away. Their "remote cable headend" service was innovative in the worst way; in the 2000s the model was widely adopted by the increasingly monopolized cable industry. "Virtual headends" became the norm, with each cable network operating central receivers and network control in-house. IPTV was quite simply a commercial failure, but perhaps we can give them the credit of saying that they were ahead of their time. Earth stations became more available and affordable, and the fees Champion could extract from television networks must have gotten thinner.

Champion Telecom shut down sometime in the '00s. Through their holding company, JJT&M Inc., Champion and Wahba held onto the building and leased it to a tenant, SteelVault Data Centers. For several years, SteelVault operated the building as a colocation center. In their marketing materials, they said "The data center building was originally built for [the] CIA in the early 1980's" [1].

Oh? Now the CIA is involved.

At one point, I felt the trail had gone cold on the history of the Oxford earth station. It clearly predated AlphaStar, and it seemed likely that it was built sometime in the early '80s as several sources claimed. But by whom, and for what? Newspaper archives turned up very little. Ironically, any search with the word "satellite" in the 1980s turns up an unlimited number of articles on the Strategic Defense Initiative, but none have any relation to Oxford.

I put down the case for a month or more. I must have looked into property records, but to be honest, I think I was thrown off the case by Connecticut's curious convention of putting tax assessors and clerks in city government rather than the county. Oxford is in New Haven County, but the New Haven assessor works for the city by that name. Of course they have nothing on parcels in Oxford.

It pays to return with fresh eyes, and today I found what should have been obvious: the Oxford assessor has record of the parcel. The Oxford clerk, in a feat rare in my part of the country, has digitized their books. I didn't even have to brave a phone call, just a frustrating web application. It was a simple trail to follow from the current deed to the survey that first described the parcel---in 1982.

In the era of SteelVault, 66 Hawley takes a strange turn. Like most "secure data centers," the sector of the market that often make claim to having renovated a government bunker, SteelVault did not flourish. In 2013, SteelVault was bankrupt and left the building. Of course, that doesn't stop numerous data center directories from repeating their CIA claims today.

JJT&M, too, was bankrupt, and the building at least seemed to be tied up in the matter. There was a lien, then a foreclosure, then a tax auction; unpaid property taxes of over one million dollars.

Then, there was a twist: the Oxford tax collector went to prison. She had been pocketing property tax payments. JJT&M sued the Town of Oxford, alleging the unpaid taxes had, in fact, been paid to begin with. They also sued the town marshal, who conducted the auction, alleging that he failed to tell the bidders that JJT&M might still hold title.

None of these attempts were successful: there were various technical problems with JJT&M's claims, but the larger finding was that JJT&M had been given ample notice of the unpaid taxes, the foreclosure, and the tax auction, but had failed to object until after the whole thing was done. Wahba had a number of business ventures in the television industry and elsewhere, and he must have been an absentee owner. A good reminder for us all to check the mail every once in a while.

The auction purchaser transferred the building to a holding LLC, probably as an investment, and then a few years later sold it to the Roller Bearing Company of America. They tore it down and built a new warehouse, and that's the end of the story.

But what about the beginning?

Several of the deeds on the property, which is variously listed with an address on Hawley or on the adjacent Willenbrock Road, include the same metes-and-bounds description. It ends: "Being the premises shown and described on a certain map entitled 'Survey & Topographical Map Prepared for G.T.E. Satellite Corp, Oxford.'"

In 1981, the Southern Pacific Railroad, owner of Sprint, launched a satellite communications business under the name Southern Pacific Communications Corporation (SPCC). In 1983, GTE acquired both Sprint and SPCC, rebranding SPCC as GTE Satellite and then shortly after as GTE Spacenet. In 1994, GTE sold Spacenet to GE, where it became GE Capital Spacenet Services, who sold the Oxford earth station to AlphaStar in 1995.

Before AlphaStar, it was a commercial earth station for satellite data network Spacenet, who had built the property to begin with. So what about the SDI? The CIA? AlphaStar had, I think, stretched the truth.

Spacenet was a major satellite data operator in the '90s. They had many commercial customers, but also government customers, and so it is not inconceivable that they held defense contracts. GTE Government Systems had definitely been involved in the SDI, contributing to computer systems and radar technology. But GTE was a huge company with many divisions, and the jump from its Government Services arm to Spacenet being built for the SDI is not one that I can find any backing for. Besides, it doesn't make much sense: SDI was, itself, a satellite program. Why would they use a commercial teleport built for civilian communications satellites?

And what of the CIA? As soon as those three letters are invoked, any claim takes on the odor of urban legend. The CIA has been accused of a great many things, and certainly has done some of them, but I can find nothing to substantiate any connection to Oxford.

It seems more likely that the Oxford earth station fits into the history of satellite communications in the obvious way. GTE Satellite was rapidly growing. From its beginning as SPCC, it had ordered the construction of two satellites that would launch in 1984. In 1982, they were making preparations, purchasing property in Oxford CT and completing a survey and zoning approvals. Over the following year the Oxford Earth Station was constructed, and when Spacenet 1 reached orbit in May 1984 it was ready for service. Oxford was just one of a half dozen earth stations built from 1982-1984 by GTE.

But there's a little more: the Oxford earth station has always had an affinity for television. Paul Allen's Skypix, a spectacularly failed satellite pay-per-view movie service, used GTE's Oxford earth station to uplink its 80 channels of video feeds in the early '90s. Perhaps this was the origin of the site's television equipment, or perhaps there had been a TV venture with GTE even earlier.

What we know for sure is that the Oxford earth station didn't make the cut when GE acquired Spacenet. They sold the earth station shortly after the acquisition. A few years later, in the words of a bankrupt company looking to sell its assets, GTE became the SDI. In the eyes of a failing data center, it became the CIA. And now those claims are rattling around in Wikipedia.

[1] The original just says "built for CIA," which has charming echoes of Arrested Development's "going to Army."