

## Back to the Future (of AIS): Information wants to be free

Dateline- sometime around 2009:

Back in 2003 – 2004, as AIS requirements kicked in for SOLAS vessels, the navigation/ safety and the maritime security guys were all feeling victorious. The SOLAS rules had mandated that vessels above 500 gt on international voyages be fitted with those little transponders. Indeed, the USA was requiring AIS on tankers calling in U.S. terminals by mid 2003 and was contemplating putting AIS on anything that floated.

By 2003, articles craftily placed in mainstream business publications were already heralding the rebirth of the dotcom phoenix and the information mavens were already poised to swoop in. As usual, the shipping industry was completely asleep at the switch. Unlike the late 1990's, up through the dotcom bust, the second wave of net based maritime internet businesses was buttressed by an infrastructure unwittingly created by ever flag, coast and port state that used international treaties like SOLAS as a template for local rules governing shipping.

By the late 2000's, the "merry band" a handful of ex dotcom shipping guys, working out of a hovel around the back of a big financial exchange, had succeeded in creating a network colossus. The crew, which consisted of some maritime business veterans, a network engineer (with a Masters ticket), a maritime electronics officer, and some wire splicers, had started small. Their leaders had grown up as shortwave listeners (decoding RTTY and Morse code on 4,8, 12 and 16 mHZ), and got started in the "comms" business after graduating up to monitoring Inmarsat A analog voice conversations on 1.6 GHz with a specially rigged Icom radio and a directional antenna, and then packaging and reselling snippets. A few years later, a group of bureaucrats and diplomats, had dropped an opportunity into their laps. With Inmarsat A about to be phased out, they realized that in its rush to save the world from terrorists, the IMO had given our heroes far bigger fish to fry. Venture capitalists (VCs), who had backed the boys' very improbable but remarkably successful "200 mile limit alarm" venture (which tied tracking to a database of which vessels had what hull types) as they diversified from selling shards of phone conversations, were now thirsting for more. But it wasn't always this way.



This time, their radio frequencies were moving back downward-specifically to the VHF bands around 160 mHz. The merry band's business mission was to tap into maritime transmissions where information could be resold. VHF was easy to get at, but the business model was proving problematic. Long range tracking using digital portions of Inmarsat had proved difficult to hack into, with packets being all scrambled. The guys were mindful that, at least one attempt to build a maritime voice network, on the VHF bands, was stuck in the mud around mid 2003, and that various VHF based ship tracking misadventures had taken on lots of water shortly and were scuttled thereafter.

One of the team's wire splicers actually put the plan together for the AIS network one night, while sitting in the hovel and tiring of the usual screen fare- the Panama Canal web camera and the live positions on the Oldendorff and Vroon sites. He began surfing brochures of AIS vendors, which regaled him with examples of miniature networks of AIS stations along coasts, where the data could be centralized and managed by regulatory agencies. At least one brochure said that the combined AIS information, say from a ring of stations up and down the Swedish coast, could be made available to shipping companies. The guys at the merry band studied the brochure, but their devious minds saw different shades of meaning here. Why could someone not tap into AIS systems freely broadcasting information with a receiver, demodulate the output, decode it (from the NMEA format), and then stuff it all into a database keyed off each vessel's unique MMSI?

The design of AIS as an open system, without encrypted transmissions or authenticated queries for sensitive information stretched the limits of the manta that "information needs to be free".



Going beyond “come and get it” (pull technologies), AIS boxes were programmed to push commercially useful vessel specific information outward, as if to yell “here it is.” So, the merry band made a deal with two big consortia of port agents, facilitating blanket coverage of transmissions at worldwide ports. At each agent’s local office, an AIS unit to receive data, a modem, the digital decoder (the translation algorithms- on a programmed chip in each unit- were the venture’s secret sauce), and another modem (pointing out to the highly secure central database) was mounted, often with VHF antennas bolted to windows facing out to the local harbor.

The VC’s, in New York’s Silicon Alley and London’s Docklands, loved the business model, and were delighted every time the local Port State control issued directives reminding vessels to enter information on cargo aboard and destination into their onboard AIS equipment. The business was simple- users logged in to a central site, on PC’s with ordinary browsers and could query the central database on ship movements all over the world, after entering a user name and password. The customers paid monthly subscriptions. The agent consortia had both extracted tough deals, their logos were displayed each time a user did a search.

The business beat all the odds- almost capsizing as it slid down the ways. In a particularly tough negotiation, one of the agent consortia had demanded to use the AIS feed on its own website (giving customers snapshots of traffic at harbors in its business area of 200 major ports), and this nearly broke the deal. It did provide the inspiration for the coup de grace for our hacker heroes- who then bagged a huge contract with Port State Control for a large country and actually sold the AIS data, now parsed, cleansed, filtered and augmented with links to local services in every port, back to that country’s Coast Guard! Talk about “Public Private Partnerships”- oh yes.

Commercial users paid big bucks for selected access, and oil traders were enjoying the ability to learn where oil-laden ships were bound. The Port State Control authorities in oil exporting countries (under the watchful eye of U.S. intelligence community) were unwitting allies each time they publicly hung an owner out to dry for falsifying or simply omitting to enter information in that “destination” field. Shipping number crunchers and graduate students were having an absolute field day, as they could figure out which owner had contracts with what charterer, once the ship movements were crossed up in a joint marketing arrangement with an outside provider of information on underlying oil sales.

Shipbrokers even jumped on board- cargo brokers in the coal trades (which had gone automated in the mid 2000’s as the burned out hulk of one famous dotcom was resurrected by a big Capesize web based portal of a leading broker, and then hooked up to the competitor) had used the AIS system to handle vessel traffic and scheduling tasks.



Tanker brokers created their own venue for AIS derived positions- actually a spoke off the main network hub, but only after agreeing to freeze smaller brokers out of the network. Agents outside the pale of the two big consortia were paying the merry bands for vessel positions- with the all important vessel position reporting process now being certified according to an ISO process (according to IMO rules implemented in the middle of the decade).

So, what about the merry band? They moved offices to another hovel, closer to the forward freighting action, and they finally decided to pony up money and buy IMO publications, instead of hacking into various pdf files to develop ideas for new products. The main wire splicer was honoured everywhere- Seatrade Man of the Year, Connecticut Maritime Commodore, etc etc. With the help of the EU and the IMO, they had made shipping industry information truly plug and play.