high quality voice channels and navigation services as accurate as any in the inventory. Every Link 16 user can identify itself to other similarly equipped platforms at ranges well beyond what Mark XII IFF systems can provide. Additionally, Link 16-equipped platforms capable of identification through other means (such as radar and TENCAP blue force tracking) can pass that "indirect" identification data as part of its SA exchange.

[0021] According to an article appearing at http://www.sinodefence.com on Sep. 24, 2006, also incorporated herein by reference, there is another manufacturer of broadband multilateration systems, in addition to those previously enumerated. That article stated that during the 5th China International Electronic Exhibition (CIDEX) held in Beijing in April 2006, 14th Institute of China Electronic Technology Corporation (CETC) revealed its YLC-20 passive surveillance radar system, which appears to be similar to the VERA-E.

[0022] The article went on to say, "the YLC-20 is a passive surveillance radar system similar to the VERA-E system developed by ERA of the Czech Republic. Based on the 'Time Difference of Arrival Principle', the system locates the source of signal position in two or three dimensions by solving for the mathematical intersection of multiple hyperbolas based on the Time Difference Of Arrival (TDOA) between the signal reception at multiple sensors. Using two hyperbolas (three receivers) the system can obtain 2D target position, while using at minimum three hyperboloids (four receivers) the system can achieve full 3D target locating. Higher accuracy can be achieved by using more receivers."

[0023] Aircraft tracking may also be used as backup and validation for primary tracking systems. The use of triangulation or multilateration to provide an independent aircraft location is seen as a viable form of validation and back up to ADS-B. The FAA released two draft specifications relating to ADS-B and associated services in September 2006, listed below, both of which are incorporated herein by reference. These performance specifications do not require multilateration, but they provide performance requirements for the back up listed below and they provide guidance that multilateration may be used to provide the back up functions.

[0024] U.S. Department of Transportation, Federal Aviation Administration, Surveillance and Broadcast Services Program, Automatic Dependent Surveillance-Broadcast (ADS-B)/ADS-B Rebroadcast (ADS-R) Critical Services Specification, Draft, Version 0.30, 21 Sep. 2006.

[0025] U.S. Department of Transportation, Federal Aviation Administration, Surveillance and Broadcast Services Program, Traffic Information Service-Broadcast (TIS-B)/Flight Information Service-Broadcast (FIS-B), Essential Services Specification, Draft, Version 0.30, 21 Sep. 2006.

[0026] These specifications provide draft requirements, subject to industry feedback, for independent validation performance as follows:

[0027] The ADS-B Service shall determine the validation status of at least 99% of aircraft/vehicles within 10 seconds of generation of the initial ADS-B Report for that aircraft/vehicle.

[0028] The ADS-B Service shall declare ADS-B data from an aircraft/vehicle to be valid if the independent measurement differs from the reported position by less than or equal to 1 NM.

[0029] The ADS-B Service shall declare ADS-B data from an aircraft/vehicle to be invalid if the independent measurement differs from the reported position by greater than 1 NM.

[0030] The probability of erroneously invalidating ADS-B data shall be defined.

[0031] Thus, there clearly is a long felt need in the industry to employ ADS-B as a backup and/or validation for other tracking systems, as evidenced by the FAA draft specifications.

[0032] Surveillance sensors may be mounted in a number of locations. As noted in earlier filed applications by the assignee of the present application, such sensors may be located at an airport or off-site. Off-site installations may include, for example, cell phone towers or antenna placements. However, terrestrial-based forms of tracking traditionally suffer over large water areas, which constrains the positioning of sensors.

[0033] FIG. **4** illustrates a Prior Art six-meter NOMAD buoy with solar panels and communications equipment as used presently by the National Oceanic and Atmospheric Administration (NOAA). A selection of the type of buoys that may be used is provided on the website for the National Oceanic and Atmospheric Administration at:

[0034] www.ndbc.noaa.gov

[0035] www.ndbc.noaa.gov/mooredbuoy.shtml

[0036] www.ndbc.noaa.gov/images/Stations/6m.jpg

[0037] all of which are incorporated herein by reference.

[0038] Different sized buoys for are used for deployment in various marine situations ranging from shallow water to deep water. Many of the buoys have power and communications available for installing equipment. According to NOAA, there are over 80 buoys deployed at various locations around the world. One example of such a buoy is the 6-meter diameter "NOMAD" buoy illustrated in FIG. **5**. FIG. **6** illustrates an example of the range of available buoys used by NOAA.

[0039] In addition to sensors located on the ground or on marine vessels, sensors may also be located on aircraft or Unmanned Autonomous Vehicles (UAVs). Farmer et al., U.S. Pat. No. 7,123,169, issued Oct. 17, 2006 and incorporated herein by reference, entitled "Method and Apparatus for Collaborative Aggregate Situation Awareness" discloses gathering data from sensors located on multiple UAVs. The patent describes autonomous sensors that may proactively collect imagery on any vehicle that radiates a specific frequency. For example, an autonomous sensor may proactively collect imagery of ground moving target indicator (GMTI) tracks that are spaced closely together (which may mean an enemy convoy), or imagery of GMTI tracks that are moving toward friendly lines (which could be a sign of an enemy attack), or imagery of infrared (IR) hot spots detected with the IR sensor (that might be an enemy tank). An autonomous sensor may also listen for a signature sound or spore or scent, and fly upstream taking pictures of the source. The collaborative system can efficiently process requests and position the autonomous sensors at the right spot at the right time. This is achieved by the assignment of priorities to requesters, types of requests, and potential areas for requests.

[0040] Schneider, U.S. Pat. No. 6,910,657, issued Jun. 28, 2005 and incorporated herein by reference, discloses a system and method for locating a target and guiding a vehicle toward the target, describes time of arrival techniques for target location. Schneider states that time-of-arrival techniques are often employed to locate a radiating target, such as a Surface-to-Air