GCN Award Winner for Government Agency IT Achievement – 2008

AGENCY: Dept of Defense USAF AFM

Project: The Air Force Global Enterprise Tracking System (AFGET)

Nomination Submitted by: USAF AFMC 78 Communication Group

Following is the nomination letter submitted for this project, summarizing the project's accomplishments, the technologies used and innovative steps taken to achieve them, and the resulting impact the project had in improving the agency's efforts.

Accomplishments:
The original concept of Air Force Global Enterprise Tracking (AFGET) was for the direct support of locating and inventorying items in the back-shops at Robins AFB, GA. As one of the major depots for aircraft maintenance in the Air Force Materiel Command (AFMC), a requirement existed for the aircraft maintenance community to track end items as they are routed from the aircraft to their point of maintenance. Items that are removed from the aircraft are required to be returned directly to the originating aircraft. The Automatic Identification Technologies (AIT) office answered this requirement with Warner Robins Radio Frequency Identification (WR RFID). In close partnership with HQ AFMC Depot Maintenance Transformation Office and Computer Sciences Corporation (CSC), this was the first step in answering real world maintenance problems with emerging technology.

The initial prototype in the Precision Measure Equipment Laboratory (PMEL) at Robins AFB implemented Active Radio Frequency Identification (aRFID) technology which provided a tri-lateral locate. The PMEL shop can determine the location of tagged items within 5-10 feet due to the tri-lateral implementation. The driving requirement had existed for some time however, solutions were limited by the availability of cost efficient solutions. As aRFID technology continued to mature it eventually achieved the critical Return on Investment (RoI) threshold for select business cases. After a successful prototype, word spread throughout the local maintenance community. Other areas brought their requirements to locate, inventory, and track their items. WR RFID spread from Robins to other AFMC depots and from there to other AFMC bases and then to other MAJCOMS.

Over the course of two years the mission evolved to a broader goal; to provide location information and remote status for assets. After two years it was realized that "WR RFID" was no longer a fitting name for this growing system. WR RFID was renamed to AFGET to reflect three significant changes that occurred during this initial growth period.1.) Air Force – as the system was no longer deployed at just Robins AFB.2.) Global – as we moved to looking beyond Robins we also realized assets would not always be local to the base.3.) Enterprise – after many other areas identified requirements to us we realized this system would not be focused on just one area but across the entire enterprise. Robins

realized that in addition to tracking end items this new technology could prove beneficial in managing Ground Support Equipment (GSE) used to support the maintenance community. The three AFMC depots own in excess of 25,000 pieces of GSE with a mean value of $25,000. Tagging this equipment with aRFID would allow us to track and manage approximately $625,000,000 in equipment. Our first step toward this goal was tagging over 6,000 pieces at Robins AFB.

Technology:
The AFGET system centered at Robins AFB is a convergence of locating and tracking technologies which provide real-time situational awareness to decision makers. The efforts at Robins AFB currently use multiple emerging technologies which include aRFID, passive RFID, and GPS as well as the capability to leverage others. These three technologies cover the majority of the Cost vs. Benefits scale of implementation. They provide the flexibility to track almost any asset both on base as well as in transit from one base to another. The AFGET infrastructure that is deployed at each location consists of aRFID WhereNet Location Sensors and WherePorts, passive RFID readers, and the necessary server equipment to support the middleware.

AFGET currently tracks over 15,000 assets and it is anticipated that the system will track in excess of 50,000 simultaneous items over its lifecycle.Users typically interact with AFGET through its user-friendly web interface. The AFGET web interface provides users with numerous options for searching, filtering and displaying their information. The data warehouse behind the web interface is responsible for maintaining current and historic location information for all tagged assets. The multiple technologies all communicate to the data warehouse through the data translation layer. This layer translates records from the multiple components to a single standard record format.

This standardization also greatly simplifies the interfaces between AFGET and other systems as all records adhere to the same schema. Standard infrastructure is already installed at all three AFMC depots and plans are in place to expand each of those footprints. AFMC will soon have the ability to track items as they traverse not only between each of the depots but also within covered areas at each of them. Let’s use a faulty gyroscope from an F- 16 at Hill AFB as an example. The gyroscope is fitted with a WhereNet aRFID tag at Hill AFB and then sent for repair to the Precision Measure Equipment Laboratory (PMEL) organization at Robins AFB. The parts and repair scheduler at Hill AFB can utilize the AFGET system to locate the item at Robins AFB. Based on the location of the item, and business areas set up in the AFGET database, the scheduler has insight to the stage of repair.

Impact:
The AFGET system has provided significant savings in several areas. The PMEL shop has seen a reduced number of flow days for work-in-process due to increased availability of test equipment. Inventories can be completed more quickly and with greater accuracy due to the self-identifying aRFID

tags. For the Ground Support Equipment (GSE), the savings come in the form of decreased inventory and maintenance costs for keeping the equipment operational. Maintenance productivity has been realized due to ability to quickly locate needed equipment and transfer it to the point of use. The AFGET system not only offers real-time locate capability but the ability to apply right-sizing methodology. With GSE tracked in the AFGET system the maintenance community can perform analysis and make more informed decisions when managing their inventory. The Vehicle Support organization has also noted a reduction in inventory costs and more efficient maintenance tracking, but the latest project is also showing benefits in Condition-Based Maintenance. The ability to monitor vehicles remotely for a myriad of statuses including transmission, electrical systems, fuel level, mileage, and several others improves the ability to schedule and balance maintenance workload. As word of AFGET's success continues to spread throughout the AF community, more requirements are being answered with the adaptation of this robust system.