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The World Wide Warehouse: Using the World Wide Web to Support United States Air Force Needs

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Abstract

In support of the United States allies, the United States Air Force makes military materiel available to foreign military sales (FMS) customers. It often happens that materiel provided to a country becomes obsolete, or excess, to that country as it upgrades or changes its weapons systems. That same materiel could be useful to one or more other allied countries. However, there has been no appropriate mechanism in place to allow one country to make its surplus materiel available to other countries. This paper provides an architecture for a system that uses the World Wide Web to provide this capability.

Introduction

The United States Government has provided foreign military sales (FMS) and security assistance to allied nations for many years, as a significant method of carrying out foreign and national security policy (DISAM, 1995). The Air Force Security Assistance Center (AFSAC) is the agency within the United States Air Force tasked with providing security assistance, mainly in the form of arms sales, to FMS countries.

Foreign military customers have purchased millions of spare parts, repair parts, and support equipment from the Department of Defense (DoD). The value of these items is in the tens of billions of dollars (*The Economist* 1994). Over time, many of those items have become excess to the needs of the owners. They must continue to stock the excess items or write them off, unless they can sell them. Continuing to stock items that are no longer needed is expensive, with no useful payback for the expenditure involved. Writing them off by destroying them, while avoiding the cost of ongoing storage, gives no value back for the cost of buying and storing them to that point. However, while these items may be excess to one country, they might still be of use to another. If countries could sell the excess items, it would allow them to recapture part of their investment. This, in turn, would allow them to purchase other parts, upgrades, or weapon systems.

To date, the United States has provided two methods that FMS customers may use to dispose of their excess inventory, besides keeping the items or writing them off. Neither of these methods has worked very well. The FMS customer may try to sell the excess inventory to another FMS customer through the Third Country Transfer (TCT) program, or they may return them to the United States through the FMS Excess Materiel Return (FEMR) program. TCT suffers from extended time delays (Anderson, 1994), lack of U.S. government assistance (Dyess and Stish, 1994), and ponderous rules and regulations that make it unfeasible for any but large scale systems (Anderson, 1995). The FEMR program was set up for the benefit of the United States, not the FMS customer. In practice, it serves to provide the United States an additional source of supply. A transaction can only take place if the United States is in a "buy" position at the time an FMS

customer offers the items for return. However, any items declared excess by an FMS customer are very likely to be obsolete in the United States, so very few transactions take place under this system.

Technology for the World Wide Warehouse

To rectify the problems created by the current systems, it was determined that a new system would be necessary. This system should be designed to allow FMS customers to both make excess inventory available to other allied nations, and to purchase items made available by those same countries. At the same time, current security requirements require the United States to be aware of, and approve, sales of FMS items between countries. This system, dubbed the World Wide Warehouse, was designed to meet these needs. This system design is based on recent advances in the handling of electronic data and on the development of the World wide Web.

Prior to developments in these two areas, organizations have mainly used paper as their means of exchanging information, creating and mailing many documents, such as billing invoices. This is a time consuming and costly process for the organization and is susceptible to the various data entry and handling error that are a part of manual data transactions.

Electronic Data Interchange (EDI) has provided a better way for businesses to conduct business (Biby, 1994). EDI works by formatting files in such a way that receiving computers can understand the message in the sending computer's file. Thus, the important information, such as how much of what item to ship where and when can be readily determined. This information can then be sent to a distribution center, where the appropriate items can be picked and shipped, frequently with little or no human intervention.

While EDI has typically been a one-to-one relationship between organizations, EC is mainly one-to many. Sokol (1995) defines electronic commerce as "the sharing of information using a wide variety of different electronic technologies, between organizations doing business with one another." In many ways, EC can be seen as the capabilities of EDI expanded to the support of commerce between an organization and its many customers.

Kalakota (1995) reports that electronic commerce as can be broadly described as "a modern business methodology that addresses the need felt by organizations, merchants and consumers alike to cut costs while, at the same time, improving the quality of goods and services, and increasing the speed of service delivery." Kalakota goes on to report that "more commonly, however, [EC] is associated with the buying and selling of information, products, and services via computer networks."

The other major advance in technology is the capability of using the Internet and World Wide Web (WWW) for EDI/EC (IETF, 1995). Whereas organizations have had to use special leased lines between organizations, the Internet allows organizations to connect to any other organization hooked up to the Internet. A major advantage of this is that most organizations do not have to pay an incremental cost per transaction-the cost is the same per month regardless of usage.

The Worldwide Warehouse

The Worldwide Warehouse was envisioned to be a global electronic network established to redistribute internationally-owned, excess spare parts and support equipment which may be used to fill FMS requisitions. It will allow countries to requisition items declared excess by other countries. It will be a virtual warehouse in which a centralized database will contain a listing of items declared excess by FMS countries. These same countries will be able to query the database to determine whether or not a needed item is in "stock". An item will be considered in stock if it is on the list of excess items from another country. If the item is in stock, the country can fill out a requisition for the item. Once the item is ordered, the Warehouse will send a letter to the seller requesting that they ship the item to an intransit inspection

point (IIP). Upon receiving and inspecting the materiel, the IIP will then send the item to the buying country (Brusky, 1995).

This system will be integrated with the Security Assistance Management Information System (SAMIS). SAMIS is the government information system set up to manage the distribution of DoD excess stock, and to coordinate it with DoD needs. SAMIS is also responsible for passing financial information to the Defense Finance Accounting Service in Denver, where most, if not all, financial accounting takes place for FMS sales.

As currently planned, unless specifically directed by the buying country to first use the Warehouse, SAMIS will use the following query procedure to fill FMS requisitions: DoD excess, Warehouse stock, and DoD wholesale stock. If none of the "stocks" have the item, it will be sent for procurement. FMS customers have the right to request that the World Wide Warehouse not be used. On the other hand, FMS customers also have the right to specifically request for the Warehouse to fill the order (Brusky, 1995).

The Warehouse will also allow customers to query the database. If it is in stock customers can request that the item come from the Warehouse. As a result, buying countries will know immediately if the item is in stock, and therefore, whether they are likely to receive the item in approximately 30 days, rather than the 700+ days that is currently common. Figure 1 shows a graphical representation of this process (Brusky, 1995).

The implementation of the World Wide Warehouse concept is expected to achieve the following 3 goals: 1) Reduce material costs by at least 10 percent for orders placed for excess inventory through the World Wide Warehouse, 2) Reduce the lead times of requisitions to 1/20th of the current average (from 700 days to 30 days), and 3) Reduce excess inventory held by FMS customers by 50%.

Summary

This article explored the design for an information system to support the disposition of excess inventory by FMS customers of the United States. The use of the World Wide Web provided a means for meeting the needs of such a system.

The design for the World Wide Warehouse is currently in the approval process. If, as expected, approval is forthcoming, the Air Force will be in a position to take advantage of the technologies of EDI, EC, and the World Wide Web to address a long-standing need for improving support for its FMS customers.

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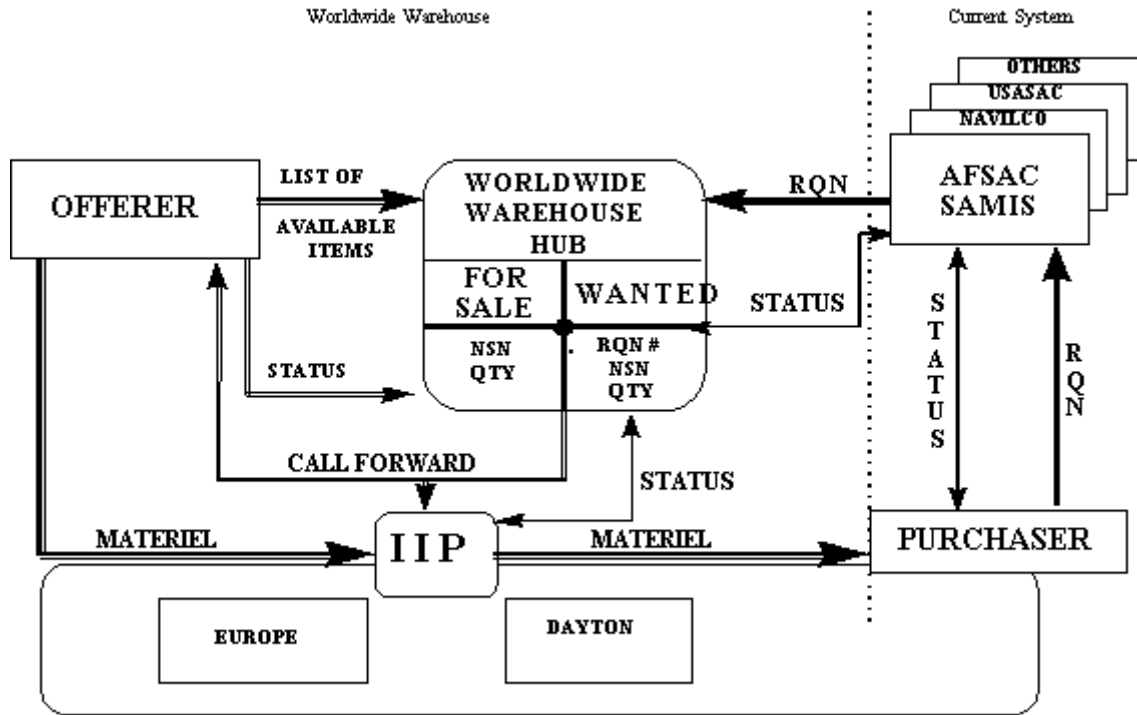


Figure 1 Worldwide Warehouse Flow

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