

The End of RFID Middleware?

It's time for RFID middleware providers to try a new approach.

Jan. 16, 2006—Despite favorable media coverage and steady growth, the RFID middleware market is facing a new set of challenges that have caused many industry insiders and software vendors to seriously rethink the role of middleware in the overall evolution of RFID. The past has clearly shown middleware, in general, to be software created in the early stages of a given technology, intended to link separate systems and allow them to communicate. Eventually, middleware becomes redundant, and RFID middleware is no exception.

RFID middleware, simply put, is a software layer residing between the RFID hardware and the existing back-end system or application software. It extracts data from the RFID interrogators (readers), filters it, aggregates it and routes it to enterprise applications such as a warehouse management system (WMS), enterprise resource planning (ERP) software or a manufacturing execution system (MES).

So far, RFID middleware has been the main focus of RFID-related software development activity taking place globally. Indeed, the first wave of RFID middleware providers was able to reap profits quite unseen in the software business since the dot-com heydays. Only a few years ago, the average selling price of a single enterprise RFID middleware software license was easily \$125,000 or more per installed site, making it very expensive to bring this new technology into the supply chain management. For a relatively simple piece of software—in terms of required functions and capabilities—it bore a horrendous price tag for early adopters.

The simple fact, today, is that RFID middleware can be purchased for as little as \$5,000 to \$20,000, and with enough functionality to run most RFID applications. It is becoming increasingly difficult for vendors to convince their clients of the necessity to pay high license fees for pure RFID middleware. German automotive manufacturer Volkswagen made a forceful point by developing its own RFID middleware completely in-house, much to the dismay of many commercial software vendors.

Stubbornly refusing to accept the steady erosion of license revenues, many middleware software vendors have been tempted to resort to the very traditional methodology of building more complexity into their products in a vain hope of stemming further price reductions. Many of these newly added functions are far from essential for the average RFID deployment. Nonetheless, they have had the unintended result of bringing many small to midsize RFID software vendors into direct competition with such enterprise software giants as SAP, Microsoft, Sun Microsystems and Oracle. This has greatly increased the predicament of pure RFID middleware providers, as these global corporations are far better equipped to compete for the clients in the long run.

Adding further to the woes of commercial middleware vendors is the emergence of open-source movements seeking to produce standardized RFID middleware, free of charge. Such movements believe that core middleware functionality is the same for most uses of RFID. As such, they believe it can be commoditized into a base open-source software platform, bringing down the cost of RFID deployments and, thus, reducing the barriers of entry.

Having tried to turn basic RFID middleware into something resembling a mini ERP system, the industry has,

by default, succeeded in multiplying the difficulty of integrating its own software modules into existing back-end systems. As the number of RFID pilots and implementations has increased, so has the number of failed RFID projects. Unfortunately, more than a few of these failures can be attributed to problems in the middleware layer, especially in terms of integration to the back-end systems.

Perhaps the most serious challenge to the RFID middleware software industry comes from a very unlikely source: RFID hardware. The first generation of interrogators was “dumb” in every sense of the word. With very few built-in processing capabilities, these devices were fully controlled by the middleware software layer and received commands from the application server. In a sense, this early lack of reader functionality was the very reason there was a perceived need and opportunity for RFID middleware in the first place.

Since that time, however, significant developments and advances have created a second generation of readers with innovative, built-in features closely resembling those offered by current middleware vendors. In the not-too-distant future, reader manufacturers will be able to offer smart interrogators able to filter, aggregate and process RFID data from the field independently. This will certainly spell the end of the RFID middleware software market as we understand it today. The device RFID middleware was originally designed to control appears to have outgrown the software, and obsolescence seems certain.

Unless the RFID middleware community is prepared to reinvent itself radically, it could well become the first casualty of the RFID evolution. Optimists within the industry argue that many middleware companies will simply become vertically aligned software developers, focusing on one specific application area—i.e., logistics, health care or production automation. The good news is that those companies already following this line of reasoning are likely to escape relatively unscathed by the likely demise of the RFID middleware market.

Others are boldly taking their chances with the mini-ERP strategy and further developing their products. These companies are directly challenging well-established multinational enterprise software companies by rolling out their own RFID product offerings.

If today’s RFID middleware industry is to stand any chance of survival, it needs to take a completely new approach. One obvious course of action would be to produce simplified software products in greater volume with reasonable pricing instead of continuing the strategy of perfecting the art of cherry-picking. If this fails, there will hardly be a cherry tree left from which to pick.

Timo Nurminen (tel: 358-20-7418800) is the founder and consulting director of the Finnish RFID software solution provider Stockway.

Copyright ©2005 RFID Journal, Inc. All Rights Reserved