

Complex Event Processing and RFID

The use of complex event processing (CEP) software can lower development time and costs for event-driven RFID and sensor-network applications.

By John Morrell

Feb. 5, 2007—Radio frequency identification and sensor network applications fit into a new category that has been dubbed "event-driven applications." At its core, RFID solutions and other event-driven applications must process and analyze the many thousand of events—in this case, readings of RFID tags—occurring on the network. In some instances, the event data is enriched for later analysis, but often, an event-driven application must immediately identify time-sensitive business events and notify key stakeholders that need to take action.

Complex event processing (CEP) software is a new breed of infrastructure software that helps event-driven applications—such as RFID solutions—process, analyze and lend meaning to the many events occurring every second. CEP software replaces the need to custom develop an event-processing engine, thereby lowering development time and costs, while enabling easier and more reliable deployments. Many analysts favorably compare the value of CEP software for event-driven business applications with that of relational databases for data-centric business applications in the 1990s.

RFID Application Challenges

Building and deploying event-driven applications such as RFID has traditionally been expensive, requiring a combination of custom development and the knitting together of infrastructure software that has not been optimized for the tasks involved. As the RFID market expands past the early-adopter stage, applications must mature to meet a higher set of expectations from customers by addressing the following requirements:

- Faster delivery of new application functionality to address a user's requirements and competitive threats
- Lower development costs and increased development team productivity
- Swifter, easier deployment, customization and tuning of applications
- Support for wide-scale deployments and 24-7 mission-critical operations

One way for solution developers and providers to address these requirements is through off-the-shelf event-processing software that makes the RFID application infrastructure more powerful and flexible.

CEP Software

Complex event processing software provides a reusable software engine to process, evaluate and analyze events in real time. Similar to how relational database software eased the process of storing and managing structured data, CEP software eliminates the difficult programming task of processing, correlating and analyzing events. CEP software encapsulates and hides the low-level event processing programming details, giving the developer a high-level language and powerful engine that simplifies programming and offers a scalable, reliable infrastructure for runtime execution of event-driven applications.

Many leading CEP engines are based on a familiar programming language, SQL. This eliminates much of the learning curve and enables developers to be productive with the CEP environment from day one. Easy-to-learn extensions are added to the CEP language to specify event-processing syntax and semantics.

The true value of CEP software is how it changes the cost structure for RFID applications. By making it faster and easier to develop applications, RFID solution providers can lower their development costs and speed development cycles, thereby getting new applications to market faster and cheaper.

CEP software also provides a robust infrastructure layer that simplifies RFID application deployment and scaling. It typically supports clustering and high availability, allowing easier management and change of application modules. Thus, as RFID applications become mission-critical, CEP software enables the solutions to withstand the rigors of 24-7 operations.

Patient Care Technology Systems

Patient Care Technology Systems (PCTS) provide optimization solutions for improving the operating performance and quality of health-care organizations. The PCTS Amelior solution uses RFID and sensor networks to identify, track and correlate the movement of patients and assets, isolating any processing and utilization problems (see [Harmon Hospital Implements RFID to Track Assets](#)).

Originally, the Amelior system was built with a custom-coded event-correlation engine. As customer environments became more sophisticated, PCTS chose to replace the custom-coded infrastructure with off-the-shelf CEP software—specifically, the [Coral8 Engine](#).

PCTS saw remarkable results from the decision to use off-the-shelf CEP software:

- The entire team of developers learned the Coral8 product and language in less than one week, with no formal training.
- The development time for new application modules was drastically reduced. The team completed its first new application module in six weeks, from inception to delivery.
- The PCTS developers are delivering more business value to customers by creating more advanced RFID and sensor-network business functions, rather than merely supporting a custom-coding infrastructure.
- Customer implementations are faster, changes are easier to apply and applications can run unattended 24-7, lowering customer deployment and operational costs.

RELATED_ARTICLES For PCTS, the value is clear: Leveraging CEP in its RFID solution can bring more sophisticated application functionality to market faster. PCTS customers now have solutions that are easier to operate and have access to richer business applications. PCTS is just one example of how CEP software is enabling more robust and reliable RFID and sensor network applications.

[John Morrell](#) is the director of product marketing for [Coral8](#), a provider of CEP software. Morrell has over 20 years' experience in enterprise software and data management. To learn more about CEP software, he recommends that users visit such CEP industry portals as [Complex Events](#)), or download free CEP development software from Coral8.