

Online Development's Enterprise Appliance Transaction Modules, the Next Generation

By Craig Resnick

Summary

ARC recently briefed Online Development Inc. regarding their latest generation of Enterprise Appliance Transaction Modules (eATMs). Over the last six years, Online Development's eATMs have built a growing installed base

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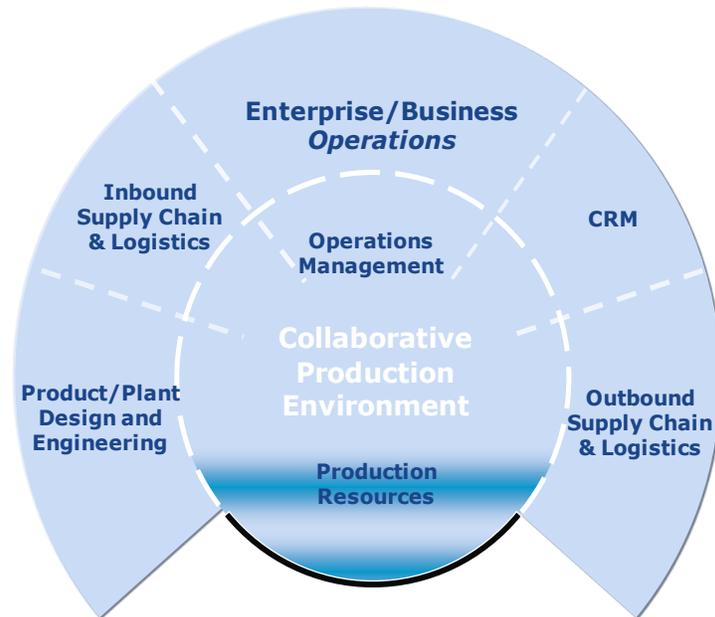
on the plant/factory floor with what ARC refers to as an "Automation Appliance", a device which provides a simplified gateway to exchange automation controller data with plant and enterprise applications running on general purpose computers. These Automation Appliances, installed either in-chassis or standalone with their

integrated hardware and software, tightly link PLCs/PACs and connect via "adapters" to databases or messaging queues, such as MS SQL, Oracle, or various versions of Java Messaging Service (JMS).

User Benefits Fuel Automation Appliance Growth

Automation Appliances are designed to provide embedded intelligence to support the end user's quest for operational excellence, which results in increased productivity and profitability. The growth of Automation Appliances has been fueled by their inherent benefits that include ease of use, low installation costs, reliability, flexibility, data security, and scalability. These benefits make Automation Appliances a practical choice to support a variety of applications such as downloading batch recipes and process line configuration, tracking and tracing, build orders and inventory management, dynamic palletizing and delivery route instructions, and integrating workflow with business processes. By using Automation Appliances to convert manual tasks into automated systems, end users can achieve faster product changeovers, better equipment utilization, higher quality levels





ARC CPS Model Showing Collapsing of Boundaries between Production and Enterprise Systems

and production rates, increased response to customer orders, and lower labor rates.

Both manufacturers and processors are moving beyond simply automating workflow, and are on a path of convergence where the plant automation system is intertwined with the business system to improve overall business performance. This convergence moves toward a single system to accomplish tasks, streamline operations, and connect customers and suppliers, all with the goal of lowering costs and adding agility. At the heart

of many of these systems is nearly real-time data flow using message queues such as JMS and other XML open messaging schemes. To describe this convergence, ARC has developed a model for Collaborative Production Systems (CPS), which clearly illustrates the increasingly collaborative relationships between the plant and business domains and how they interact with the rest of the enterprise in a non-hierarchical manner. Automation Appliances are key enablers of Collaborative Production Systems.

New Appliance Capabilities for the Connected Enterprise

To address the needs that both manufacturers and processors have in deploying nearly real-time messaging systems that connect their factories /plants with the enterprise, Online Development has introduced a number of JMS-based adapters for its eATMs. These adapters, in addition to specially configured software, exchange data between factory/plant floor devices and controllers with IBM WAS JMS, RedHat JBoss JMS and JBoss Community JMS. In addition, there are also adapters available for common IBM, Oracle and Microsoft databases to enable business system flexibility for end users.

Following the inherent benefits of Automation Appliances, eATMs are easy of use. Data exchange between the factory/plant floor and computer systems is established via simple configuration, unlike other methods that rely

on custom programming to exchange information. Menus showing controller and computer system data enables the selection and grouping of data into projects for exchange. For example, bar code-scanned data that

Databases & Messaging Systems



Allen-Bradley, Schneider & Siemens PLCs/PACs Enterprise Appliance Transaction Modules Offer a Simple and Effective Method to Exchange Data between Computer Systems and Plant Floor Controllers

includes time, quantity and type information from a completed pallet on the plant floor will automatically send that information to the warehouse or shipping area. To trigger exchanges, values can be selected, such as time, condition, event or other variables.

To protect against data loss that would affect production or a process, eATMs include store-and-forward as well as fail-over protection. If communications between the eATM and the computer system are interrupted, the store-and-forward feature archives the plant floor data and forwards the data when the connection is resumed. The failover protection also protects against data loss by sending data to another designated computer system as soon as data flow is interrupted. In both instances, the eATM can be configured to send an alert during an interruption via email, cell phone, or PDA device.

Online Development's eATMs are also designed to protect data configurations. Configurations are stored in the eATM in removable non-volatile memory, which enables configurations to be imported or exported for reuse, backed up, or restored should the base eATM require replacement.

Added Connectivity & Secure, Non-Intrusive Operation

Online Development's eATMs are available for installation in a Rockwell Automation PAC, or can be independently mounted in a panel. Either configuration is available with automation adapters to exchange data between specific computer systems and Rockwell Automation, Siemens and Schneider Electric controllers. To further enhance flexibility, communica-

tions adapters are available for TCP/IP, UDP and FTP protocols for networking, and SMTP and POP3 protocols for email.

eATMs also feature a high-level of security and are not prone to computer viruses, hackers or unintended operation. The end user or systems integrator only deals with configuration settings and is never exposed to the underlying operating system. There are no software updates or Service Packs.

Enterprise Appliance Transaction Modules of Tomorrow

During the ARC briefing, Mr. Ron Monday, President and CEO, Online Development Inc., provided an insight to the future of eATMs. “Online Development is anticipating the future market for Automation Appliances and has new designs in development to meet those needs. For example, Online Development is working on the capability to include Microsoft Excel and Access functionality, which will help smaller scale data management applications. On the other end of the spectrum, Online Development is looking at adding adapters to exchange controller data with specific factory and enterprise applications. Extending the reach of Automation Appliances will help businesses take a lot of the complexity out of plant floor and business system integration.”

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In Summary, Latest eATM Addresses Key Market Needs

Manufacturers and processors need to re-examine their automation and operations management strategies and develop plans to breakdown the remaining barriers to information visibility, collaboration, and unified plant-wide control to achieve the next level of business performance. For applications requiring simple data exchange, many manufacturers should consider Automation Appliances as an important tool for interoperability between plant floor devices, controllers and business systems. Manufacturers and processors need to adopt the ARC CPS Model as a basis for planning and strategizing their requirements to achieve operational excellence from their automation and operations infrastructure, and Automation Appliances are playing a key role as part of these Collaborative Production Systems.

Automation Appliances are in growing demand by manufacturers, systems integrators, and OEM machine builders due to their ability to provide data exchange between plant floor devices, controllers and business systems; information that is crucial for manufacturers to optimize productivity. Automation Appliances benefits include simplicity of installation, minimal programming with simple configuration tools, immunity to viruses or hackers disrupting their operation, and no maintenance upgrades, all of which results in substantially lower product lifecycle costs. Automation Appliances play a key role in the growing integration of the real time world of control applications with the transactional world of operations management, engineering, and design.



In ARC's opinion, Online Development's latest generation of eATMs are well positioned to address the needs that both manufacturers and processors have in deploying nearly real-time messaging systems that connect their factories and plants with the enterprise. Online Development's use of JMS connection technologies should provide the necessary scalability for the end user to deploy eATMs in a variety of both large and small applications, allowing for future growth and development as the plants evolve, change, and expand their production requirements.

A challenge for Online Development to further develop the market for Automation Appliances and specifically its eATMs is to help manufacturers and processors quantify the number of hours spent, the amount of custom code generated, and the amount of money consumed trying to tie plant automation systems and business systems together and compare that to the total product lifecycle costs of its eATMs. All industries are faced with issues such as sustainability, preserving capital assets and extending their life, increasing asset utilization, maximizing operational effectiveness, reducing fixed costs, minimizing variable costs, and empowering their workers, all of which require the convergence of plant automation and business systems. Once Online Development defines the time and cost savings of deploying Automation Appliances to achieve convergence versus other methods, the numbers alone will create the justification needed to accelerate their market growth.

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