

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

By Craig Resnick

## Summary

Online Development Inc. recently briefed ARC regarding the company's latest generation of Enterprise Appliance Transaction Modules (eATMs).

Over the last six years, Online Development's eATMs have built a growing

installed base on the plant/factory floor with what ARC refers to as an "automation appliance." This provides a simplified gateway to exchange automation controller data with plant and enterprise applications running on general purpose computers.

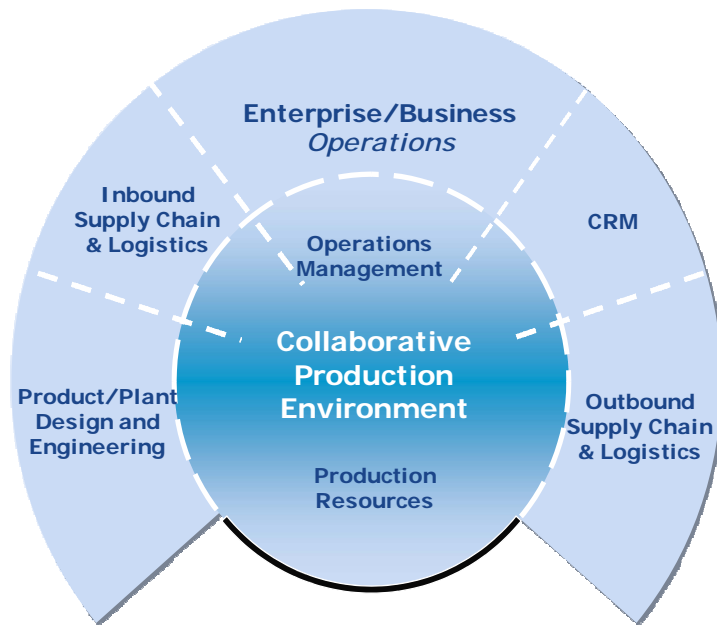
installed base on the plant/factory floor with what ARC refers to as an "automation appliance." This provides a simplified gateway to exchange automation controller data with plant and enterprise applications running on general-purpose computers. With integrated hardware and software, these automation appliances, installed either in-chassis or

standalone, 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

Suppliers design automation appliances to provide embedded intelligence to support the end user's quest for operational excellence to increase productivity and profitability. Inherent benefits – such as ease of use, low installation costs, reliability, flexibility, data security, and scalability– fuel the growth of automation appliances. 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, building orders and inventory management, dynamic palletizing and delivery route instructions, and integrating workflow with business processes. Using automation appliances to convert manual tasks into automated systems, end users can achieve faster product changeovers, better equipment utilization, higher quality levels and production rates, increased response to customer orders, and lower labor rates.





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

Discrete and process manufacturers are moving beyond simply automating workflows. Instead, they are on a convergence path to intertwine the plant automation system 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 conver-

gence, ARC developed a model for Collaborative Production Systems (CPS). This 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 need of both discrete and process manufacturers needs to deploy nearly real-time messaging systems that connect their factories/plants with the enterprise, Online Development 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. Online Development also offers adapters for common IBM, Oracle and Microsoft databases to enable business system flexibility for end users.

By definition, as automation appliances, eATMs are inherently easy to 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 enable users to select and group data into projects

## 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**

for exchange. For example, bar code-scanned data that 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, users can select values such as time, condition, or event.

To protect against data loss that would affect production or a process, eATMs include store-and-forward as well as failover 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 also designed its eATMs 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, communications adapters are available for TCP/IP, UDP and FTP protocols for networking, and SMTP and POP3 protocols for email.

Featuring a high level of security, eATMs 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 De-

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Mr. Ron Monday, President and CEO,  
Online Development Inc.

velopment 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.”

### In Summary, Latest eATM Addresses Key Market Needs

Discrete and process manufacturers need to re-examine their automation and operations management strategies and develop plans to break down the remaining barriers to information visibility, collaboration, and unified plantwide 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. Discrete and process manufacturers alike 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. Automation appliances play a key role within these Collaborative Production Systems.

Demand for automation appliances grows from 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 operation, and no maintenance upgrades, all of which result 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 of both discrete and process manufacturers to deploy 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.

To help further develop the market for automation appliances in general and its own eATMs in particular, one challenge for Online Development 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 face issues such as sustainability, preserving and extending the life of capital assets, increasing asset utilization, maximizing operational effectiveness, reducing fixed costs, minimizing variable costs, and empowering their workers. These all 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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