ARC BRIEF

JUNE 2, 2006

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Connectivity based on Open Standards is proving to be the "Best" Choice for Industry

Introduction

Ten years ago, the word "open" was never associated with communication between disparate industrial automation products. Communication meant writing proprietary software drivers, which took great time and expense to develop, test, and maintain. This forced manufacturers to manage what amounted to hundreds of additional components that were subject to revision changes and operating system upgrades. To solve this problem, a number of leading worldwide automation suppliers collaborated with Microsoft to develop a specification based on a standard set of objects, interfaces and methods for use in process control and manufacturing automation applications to facilitate interoperability. The specification was based on Microsoft's OLE COM (component object model) and DCOM (distributed component object model) technologies to provide a framework for software products to be developed. Hence, OPC (Object link embedding for Process Control) was born.

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OPC increased the demand for major automation suppliers to look for third party providers of communications solutions to help enhance connectivity options to their own products. This led Kepware, whom in 1996 was a provider of HMI software, to redeploy all of the company's resources to the development of OPC server products. Rather than compete with the major automation suppliers, Kepware wanted to create solutions that enabled suppliers to easily and reliably connect with the tremendous number of products and solutions on the plant floor. This became a major time and cost savings for the manufacturers, as well as a major sales stimulant for the automation suppliers, which benefited all parties. Today OPC is a widely adopted standard in automation, and to many automation professionals Kepware has become the standard for their OPC server-based systems.

Industrial Connectivity is Kepware's Primary Focus

Kepware is one of the largest companies focused solely on OPC server technology and device communications products in the industrial automation space. Kepware has OEM and preferred provider relationships with many of the largest automation suppliers. This means that thousands of manufacturers are using Kepware products and may not even realize it. Kepware became an active member of the OPC Foundation in 1998, and today participates in initiatives including OPC's newest offering for plant floor to enterprise connectivity, OPC Unified Architecture (OPC-UA). OPC Unified Architecture is the new series of specifications that embodies the OPC Foundation's and Kepware's vision of providing secure, reliable interoperability for moving data and information from the factory floor to the enterprise. OPC Unified Architecture is intended to provide the framework for moving information between applications in the enterprise space by taking the existing OPC specifications, tying them all together, and leveraging Web Services as the key technology enabler in the new architecture. Connectivity of devices on the plant floor, such as control systems, will also benefit from the reliable delivery mechanisms laced with robust security features that form the cornerstones of the OPC Unified Architecture. As such, Kepware is currently directing the OPC-UA early adopter initiative for the OPC Foundation.

Compliance Testing (OPC server products only)	Verify OPC product implements specification properly by using OPC standard software Compliance Test Tool (CTT). Suppliers submit encrypted file generated by CTT to OPC and display results in OPC catalog.
Interoperability Testing	OPC suppliers attend Interoperability (IOP) Workshops to test products with other OPC suppliers. IOPs occur in Japan, Europe, and US each year. Process requires OPC suppliers to run tests on combinations of OPC client and server products. Results collected and displayed in OPC catalog.

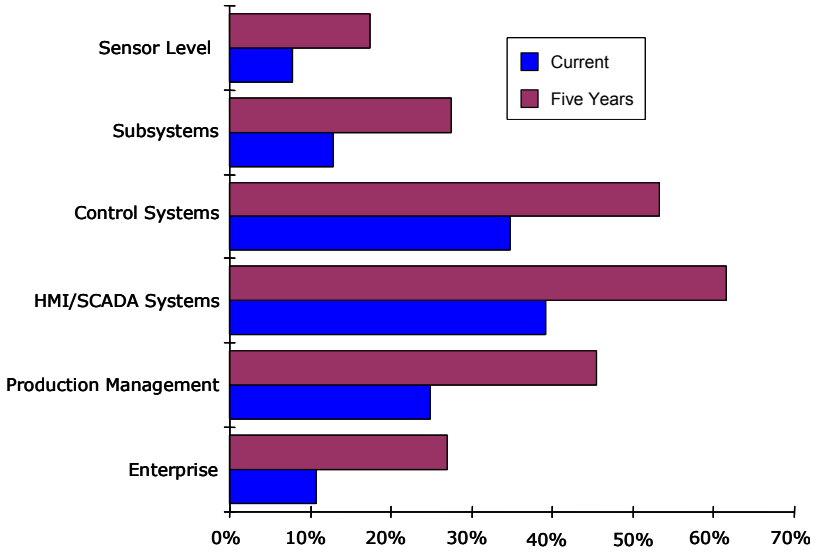
The Two Components of the OPC Certification Program: Compliance Testing and Interoperability Testing

Another key area of focus for Kepware is OPC's enhanced certification program. Manufacturers who purchase OPC-compliant products from automation suppliers expect secure, reliable interoperability in a highly plug-and-play fashion. However, manufacturers have found that interoperability of some of these products can be more akin to plug-and-pray than plug-and-play. In response, the OPC Foundation has launched a new certi-

fication program designed to help manufacturers reduce their system installation costs. This certification program merges the OPC compliance program and the OPC interoperability program while leveraging OPC's new Unified Architecture. Kepware's OPC enabled products are consistently tested at OPC Foundation-sponsored interoperability workshops, and their OPC servers are tested with the OPC Foundation's Compliancy Tests.

OPC Usage, As Well As Kepware Solutions, Will Grow

As companies move to an environment of real-time event-driven manufacturing where information from the plant floor will drive visibility and production intelligence applications, technologies such as OPC, Web Services and Service-Based Architecture, as well as existing integration methods, will provide the interoperability needed to connect the domains of the manufacturing enterprise. ARC had recently commissioned a survey regarding OPC usage. Respondents to the survey were asked: "What is the approximate percentage of OPC used for your Plant Connectivity today and in five years"? Today, OPC is used at virtually every system level in the production process, and in many cases it is Kepware solutions that are providing this connectivity. Overall, the leading area of usage for OPC continues to be at the HMI/SCADA and control systems levels, with production management representing one of the fastest growth areas for adoption in manufacturing. The survey respondents are forecasting clear growth plans for OPC over the next five years. The installed base of OPC is expected to increase at every level of the plant, especially with the release of OPC-UA substantially growing the production management and enterprise applications. Kepware's extensive OPC experience will be critical in directing the OPC-UA early adopter initiative for the OPC Foundation.



OPC Usage: Current and Five Year Forecast

Consistency by Design

Kepware designed their OPC server as a "single server interface" with driver "plug-ins" for different types of PLCs, systems, databases, and networks. This ensures shorter product learning curves, reduced system training and maintenance costs, and improved network reliability, regardless of the control system in use.

In today's automation market, customer demands for an ever increasing range of features and capabilities have kept automation suppliers and system integrators scrambling to stay ahead. The need for these companies to continuously improve their own products and services leaves little time to also be experts in connectivity. Kepware addresses this expertise and resource issue by offering a wide range of consistent connectivity combined with proven engineering and support resources to properly serve all customers. Companies who standardize on connectivity by Kepware can then focus on their core competencies and solutions.

About Kepware

Kepware specializes in OPC and device communication technologies for the industrial automation market. Kepware's genuine OPC software products are designed to provide quality, reliability, and ease of use to their customers worldwide. Kepware's company focus is to provide superior responsiveness to their customers' needs and to maintain strong partnerships with automation suppliers. Kepware sells solutions to automation suppliers and system integrators for both factory automation and process markets, and their products are found in virtually every type of application where PLCs and HMI software are used.

This paper was written by the ARC Advisory Group on behalf of Kepware. The opinions and observations stated in the paper are ARC's. For further information or to provide feedback, please contact the author at cresnick@arcweb.com.