# SMAR SYSTEM302 migration path to OPC-UA

Web services have been “the next big thing” for many years. Many tout Web services without explaining how they will be used in automation. OPC-UA (Unified Architecture) looks like a first tangible example of what Web services can do for automation. You have heard of OPC-UA and may even have seen the demo at ISA 2005, but what does it mean to SYSTEM302 users?

## *Background*

Integration between the control system and execution (MES: Manufacturing Execution Systems) and business (ERP: Enterprise Resource Planning) is becoming an extremely important feature for system integrators given the vast number of available products in the market. It is very important to select products that can interoperate between and at each level of the control hierarchy. Some Process Automation Systems (PAS) such as SMAR's SYSTEM302 have an open software platform, currently providing full connectivity through OPC-DA, OPC-A&E, and OPC-HDA based on Windows DCOM. OPC-UA is rising as an even more powerful and secure approach for promoting interoperability between all levels in the control hierarchy, by using XML based technologies in place of the current DCOM standard.

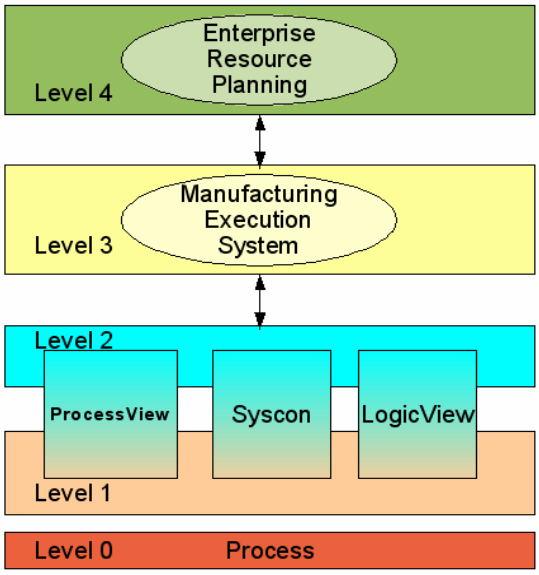



**Figure 1. Control hierarchy levels and SMAR SYSTEM302.**

As plants are showing interest in integration between the process automation system and the rest of the enterprise and since integration between components within the process automation system increasingly comes ready "out-of-the-box" thanks to control-network standards, the role of the system integrator will gradually shift towards higher-level integration. OPC-UA eliminates the need for custom driver programming and will provide connectivity among an even wider range of applications.

With OPC-UA it is much easier to tie in "intelligent" applications that can receive data from SYSTEM302, process it, and send it back across the web such as plant performance analysis and tuning based on web services.

### *Better Enterprise Integration*

Many individuals throughout the enterprise have no access to the control room, yet need process data to make decisions. For this reason a connection is needed from SYSTEM302 to the rest of the organization. For example, each plant may have a team dedicated to performance improvement. The software they use needs access to all process data in order to access the control loops to compute variability, error, output standard deviation, and detect oscillation. Information also needs to come from the ERP and MES down to SYSTEM302. When a customer places an order it comes in through the ERP. The production of the particular products gets scheduled. Once it is time to produce the product the information starts to trickle down to the control system including setpoint values for pressures and temperatures as well as batch sizes for the ingredients and other recipe properties including tuning constants. Only if the SYSTEM302 is networked with the rest of the enterprise this scenario can be completely automated. Since DCOM is not used, OPC-UA can even be used on non-Windows operating systems.

### *More Detailed information from the field*

Using OPC-UA and EDDL (Electronic Device Description Language), SYSTEM302 can supply detailed information from the field, preserving its original structure, in a uniform fashion. This way, HART, Profibus and Foundation Fieldbus device descriptions can be easily accessed by UA-enabled applications.

### *Improvement in database integration*

Using OPC-UA, process variables values, alarms and historical information currently managed by SYSTEM302 via its OPC-DCOM servers can be easily extracted from an integrated database, resulting in less configuration time and complexity.

### *Improved asset management*

Using OPC-UA and EDDL, SYSTEM302's AssetView can provide detailed device diagnostics, and also dispatch maintenance actions to MES and ERP systems.

### *Conclusion*

By investing in the SYSTEM302 open software platform you are well prepared to migrate to OPC-UA as migration from DCOM-based OPC is expected to be smooth, enabling users to take advantages of web services such as these. SYSTEM302 has been based on OPC since the technology was first released, and SMAR joined the OPC-UA development team since its beginning. SMAR is currently working on SYSTEM302 migration to OPC-UA, as OPC-UA will provide SYSTEM302 users even greater value.

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