Chipkin OPC UA gateway to over 140 other protocols

For building, plant and process systems engineers continuing their long odyssey seeking interoperable open system computing platforms coupled with compatible industrial equipment communication protocols, the elusive holy grail of open-system automation now appears to be in sight as we look to the Cloud.

The relatively new Open Platform Communication United Architecture (OPC UA) looks to be the promised solution. It attempts to bring together the productivity and cost advantages of machine-to-machine intelligence, the Industrial Internet of things (IIoT) and cloud-based architecture. This approach promises to greatly simplify the industrial automation migration path to the cloud while improving data security and much more.

With its pedigree going back decades, OPC UA is the latest generation of the classic version of OPC, which was borne of the object linking and embedding (OLE) technology that replaced ladder logic. Classic OPC was the missing link allowing HMI/SCADA systems to interface by converting generic-OPC read/write requests into device-specific requests and vice-versa.

The Challenges

Developed by the OPC Foundation as an industry standard, OPC UA is used as a transport route and IT standard with integrated security. As an OPC UA client, the controller pushes the data as "historical access" data into the "big data management solution" stored in the cloud.

Next-gen OPC UA provides: (1) platform independence, (2) enhanced data security, (3) plant- to executive-floor integration, (4) IEC standard compatibility, (5) a simplified architecture, (6) a robust, but not technically restricted specification, (7) comprises a large amount of domain specific add-ons, (8) is scalable, (9) is future-proof, (10) and is easily deployed.

As systems engineers embrace next-gen OPC UA architecture on the way to the cloud or SCADA systems, they are still faced with some challenges. They must integrate legacy automation systems running over BACnet, Modbus, EtherNet/IP DNP 3.0, etc, residing on installed controllers. In a large facility, there are often thousands of I/O points and hundreds of programmable logic controllers (PLCs)--all managed by a distributed control system (DCS).

The Solution

Chipkin developed a driver for MSA's FieldServer Gateway Interface family of communications products with its ProtoNode model's OPC UA interface driver is designed to help engineers and technicians reach their cloud-based industrial automation objectives with a minimum of delays or roadblocks. With more than 140+ communication protocols, MSA's FieldServer Gateway family of products provides the means for disparate devices to communicate in the cloud.

How It Works

MSA's ProtoNode Gateway meets the requirements of the OPC UA driver as set by the OPC Foundation. The FieldServer is designed with Serial & Ethernet ports, which can be loaded with any of the 144 protocols to then be connected to OPC UA network.

The ProtoNode Gateway can emulate both a client and a server. When configured as a client, the ProtoNode's OPC UA driver will connect to the configured OPC UA servers and attempt to read the requested data points. This data is then mapped to any of the other protocols loaded in the FieldServer.

When the ProtoNode Gateway is configured as a server, the OPC UA driver creates an endpoint that other OPC UA clients can connect to. It creates the OPC objects and attributes based on the configuration to make data from other protocols available to OPC UA clients.

Conclusions

MSA's ProtoNode Gateway with OPC UA driver offers building, facility and plant engineers many advantages in terms of open system computing platform flexibility along with the integration of the most popular industrial automation communication bus protocols, including BACnet, Modbus, EtherNet/IP, etc. It looks to truly be the satisfying end to a long industrial automation odyssey seeking to leverage the power of machine-to-machine intelligence, IIoT equipment and the cloud.

About Chipkin

Chipkin Automation develops protocol drivers. Some are sold and supported by MSA. Some are sold and supported by Chipkin. Chipkin are data communication specialists with 20+ years of experience. The OPC UA driver will be sold and supported by both MSA and Chipkin.