Softing's echocollect provides solid basis for state-of-the-art process data management system

Professional Process Data Management

Unplanned production downtime can quickly run up high costs. This can be avoided by monitoring all production processes in order to detect possible faults in sufficient time to take appropriate countermeasures. With the central collection and logging of all process data, the echocollect process data manager from Softing Industrial Automation plays a key role in communication monitoring.

For companies to remain competitive today, it is important to continually monitor and increase the efficiency of their production processes. A special focus is on maximum machine utilization, optimum use of resources and, above all, the avoidance of production standstills. To eliminate costly machine downtime, it is essential to continuously monitor the production facilities, identify potential faults as early as possible, and schedule the necessary maintenance or repair work. Consistent data acquisition in the communication network of the equipment and machine park plays a major role in this approach. The echocollect system from Softing Industrial Automation is the ideal tool for this task. The innovative data concentrator provides the basis for a state-of-the-art process data management system and passes all acquired process and production data directly to the higher-level management system. An added benefit of this solution is that it does not interfere with any control systems running in the production plant.

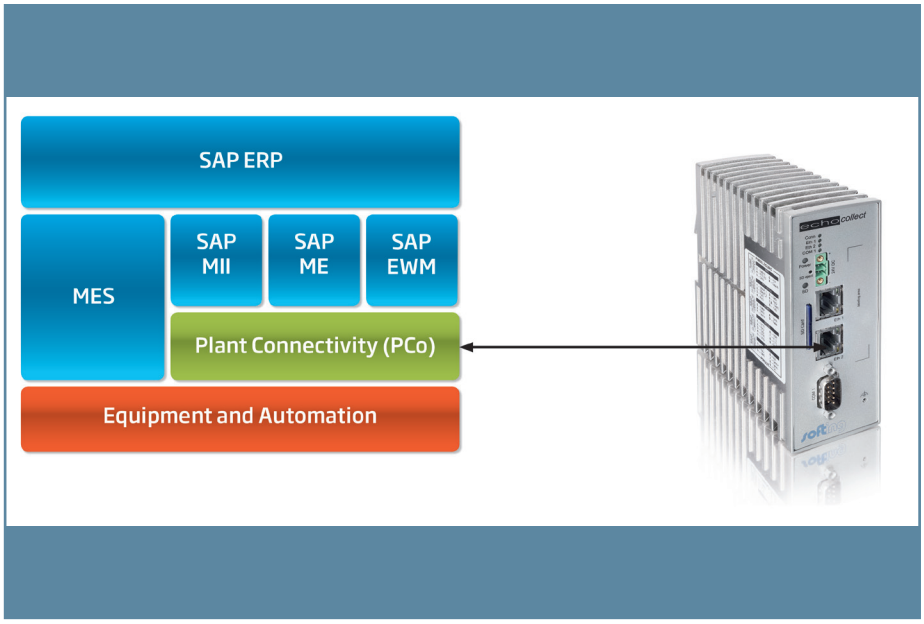

Figure 1: echocollect is directly connected to the SAP PCo module

Bidirectional database communication

Once set up and configured, the echocollect system continuously collects all process and production data at the factory level and transmits it to the database of the MES system, without causing interference or influencing data traffic. The structure of the database itself is of minor importance because the echocollect system can prepare the collected information for SQL, Oracle or db2 based databases. For error-free data transfer it is also irrelevant which MES system is used in the company. What's important is the access to the database structure of the system. The echocollect data concentrator writes the data collected from the machines' PLCs to the database in exactly the format required. The process data can be written back to the PLCs of the machines in the same manner.
Another advantage is that the database variables can be browsed via echocollect and directly assigned to the PLC symbols. This eliminates the need to generate scripts for external database communication, as previously required.
echocollect also ensures a high level of security. In case of network failure and the associated risk of data loss, the data acquired up to that point are timestamped and buffered in echocollect's integrated data logger. The two Ethernet interfaces provided by echocollect can also be used as a gateway to separate the office network from the production network.

Direct machine connection to SAP

echocollect offers the possibility to connect the machines directly to an SAP system simply via Ethernet – without the need for an additional PC. For this, the OPC Server integrated in the echocollect system is connected with the SAP PCo (Plant Connectivity) module via a DCOM tunnel. As a result, not only the usually required PC system is superfluous, but also the complicated configuration of DCOM settings and all the complex administrative tasks and high costs it involves. The SAP PCo module acts as an OPC Client in this case and supports connection to more than 50 different machine controllers via the echocollect system.

Status data monitoring via SNMP

The echocollect data concentrator cyclically monitors the states of all connected devices in the network by means of the widely used SNMP protocol. SNMP (Simple Network Management Protocol) was introduced as a standard by the network industry. In networks with widely disparate devices from different manufacturers, the protocol provides the basis for a unified interface for network diagnostics. The SNMP variables are supplied in a standardized MIB (Management Information Base) data structure. The acquired diagnostic data (SNMP variables) can then be integrated in a database or passed directly to SAP clients and OPC clients, respectively.

Gateway for OPC UA Client applications

The OPC UA (Unified Architecture) communication protocol also offers significant advantages, the most important being the comprehensive security concept. In addition, the OPC UA protocol standardizes the use of different OPC Servers such as DA, AE or HDA, and OPC Clients, thus supporting vertical and horizontal data exchange. Other key benefits of OPC UA are its Internet capability, which allows OPC communication across firewalls, and its consistent platform independence, ensuring seamless operation of OPC with Linux, Unix and embedded operating systems.
Migration to OPC UA is not that simple, however, if the production facilities concerned have been communicating with their client systems via the OPC (DA, AE, HDA, XML-DA) protocol for years. The key question to be answered is “How can the legacy machinery and equipment be integrated into OPC UA technology?” The solution is echocollect – used as a gateway.

Figure 2: echocollect offers numerous possibilities for data collection via serial and Ethernet interfaces

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