

# Process Control & Automation

PCA (Process Control & Automation) represents Hint's vision on system integration. It is our answer for control and MES applications. PCA solutions range from a single PC providing special functions in network of PLC's, SCADA, DCS modules to extensive multilayer PC networks.



## PCA Automation Philosophy

Hint System Integration capability covers both "the field and the office". We translate the mission and goal of the customer's organization into strategies that can be implemented at the MES level and executed on the shop floor. If the plant cannot produce what top-level planning and scheduling requests, you get a counterproductive system. For system design we use the MESA guidelines, ISA 95 and ISA 88 standards, however this does not prevent us from using pragmatic solutions, whereby not all layers of the model are fully implemented. Many of our PCA solutions are of a "supervisory" nature, the selected technologies allow Hint to generate a single integrated 'vertical' solution covering all process levels (Control/PLC, SCADA and MES) and to seamlessly connect with ERP systems at the management level.

In our work we strive at re-using engineering and solutions that have proven themselves in other applications supplied earlier by Hint. Advantages of re-usable engineering translate into higher reliability of the software and cost advantages.

## Hardware

Hint is technology- and supplier independent and can integrate any technology that is the best fit for the purpose. For PCA we are using commercial-off-the-shelf hardware components from well-established suppliers, with worldwide support capability for their products, PC's network components, servers, remote I/O etc. Today's Industrial PCs have sufficiently high reliability and availability (> 99,9 %) to consider their use in control applications. Redundant PC configurations and data storage stretch reliability and availability even further (<99.999 %), permitting reliable Soft PLC technology for process control.

Hint system engineers perform the in-house hardware engineering and supervise the assembly of cabinet at local partner companies.

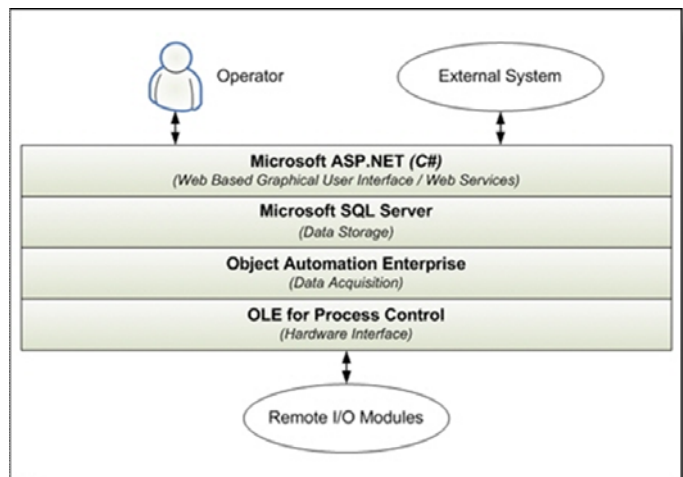
## Software

PCA is based on Microsoft Windows and international IT standards:

### Microsoft .NET Framework

Microsoft .NET Framework is the latest programming model for creating applications of many types: web applications, server applications, smart client applications, console applications, database applications, and more.

The .NET Framework offers standard libraries with a large set of functions for user interfacing, data access, database connectivity, cryptography, web application development, numeric algorithms, and network communications. Hint applies Microsoft's ASP.NET technology for implementing web based graphical user interfaces (GUI).



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Web applications have a lot of advantages compared with Windows applications:

- Accessibility (anywhere accessible via Intranet or Internet)
- Scalability (number of client-server connections only limited by server capacity)
- Maintainability (no installation of components on client PC's required)
- Security (easy to secure with standard firewall configurations)
- No license cost (unlimited number of clients without additional license fees)

Additional (third-party) components are used to introduce more richness and interactivity into the web applications. Examples are: AJAX.NET, Dundas, Nevron and Crystal Reports.

#### *Microsoft SQL Server*

Microsoft SQL Server is robust data storage technology for storing data in a relational database. Microsoft SQL Server 2005 supports .NET technology. This enables Hint to develop and integrate .Net applications with SQL Server. SQL Server has an open interface via ADO.NET or ODBC for connectivity with other external systems.

#### *SCADA*

SCADA technology is available from a number of suppliers. We always leave the final choice of the supplier to the user. SCADA software provides the needed drivers to interconnect systems and applications

#### *OPC*

OPC is an industrial interfacing standard, based on Microsoft OLE, COM, and DCOM technologies. It specifies the communication of real-time plant data between control devices from different manufacturers.

## Connectivity

PCA solutions support a wide variety of communication protocols and data formats for interaction with external control- and information systems like DCS, PLC/Scada, analyser systems, LIMS and other plant based information systems. Connectivity can be via:

- Data File Import/Export (ASCII, XML, CSV, Excel)
- OPC (client interface & server gateway)
- Industrial Protocols via third party OPC servers (MODBUS, Profibus, fieldbus, etc.)
- Databases (SQL Server, MySQL, Oracle, Access, ODBC)
- SOAP (provider and consumer of web services)

## Applications

Examples of Hint PCA based applications include:

- AML Analyser management, Metering and Loading solutions
- Hotspot Monitoring and Water Cooling System for Blast furnaces and other thermal processes
- Filling containers under pressure with cooling liquids
- Test Systems for prefabricated building elements
- Temperature Control System in a nuclear test facility
- Waste Water Monitoring and Management System

## Superior ROI

Hint PCA offers elegant solutions with a superior Return On Investment (ROI) specifically for applications where:

- Hardware represents a major part of the overall system cost
- The focus is strong on MES and communication with external applications
- The need for flexible manufacturing is high, e.g. when manufacturing is customer order based.



Hint  
De Netelhorst 4  
8051 KE Hattem  
The Netherlands  
T. +31 38 4432300  
F. +31 38 4432301  
E. info@hint.nl  
I. www.hint.nl

