PcVue® Solutions

Architectures and deployment

www.pcvuesolutions.com

STAND ALONE HMI STATION

Standalone stations are usually operator panels, it is the simplest architecture with all features and roles integrated into a single station.

In a traditional single-user configuration, PcVue monitors and/or controls all devices on the field network and also handles user requests. PcVue can support some tens of thousands of variables on a single station.

BENEFITS

- ✓ The simplest architecture
- ✓ To monitor and control your process from a single “all-in-one” station
- ✓ All performances of a PcVue station for a stand-alone architecture

FEATURES

- ✓ Data acquisition
- ✓ Real-time database
- ✓ HMI
- ✓ Archiving
- ✓ Alarms and logs
- ✓ Trends
- ✓ Data processing and programs (including VBA)
- ✓ Users management
- ✓ Includes a single communication CIMWAY driver
- ✓ WebVue client as an option

MULTI STATION

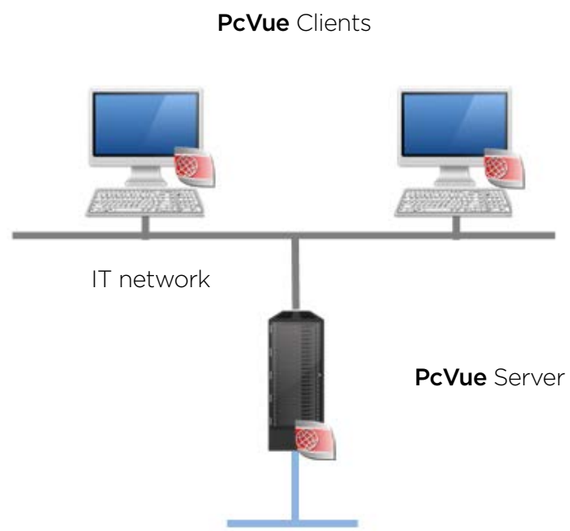
The simplest client/server architecture, for applications that require several user stations with a single connection to the industrial network.

The server is a data source (producer) that communicates with the devices and broadcasts data to the client (or consumer) stations. Communication among the PcVue stations works asynchronously and transmits the data in packets using the PcVue TCP/IP messaging.

The server station can be a full user station or a data acquisition server only. It performs all of the data processing for the application. The historical data can be on server side only, or local to each client station.

A client can connect to a server located in another geographical area via a connection using any media supporting TCP/IP with sufficient capacity including private telephone line, or even satellite link.

A usual variation is to separate Data Acquisition and Historical Data production on 2 different servers, or to have clients produce historical data locally.



BENEFITS

- ✓ The simplest multi station architecture
- ✓ Data processing network load optimized.
- ✓ The process is monitored from several remote user stations

FEATURES

- ✓ All features supported (HMI, archives,treatments,...)
- ✓ Data and actions shared among stations
- ✓ Built-in redundancy mechanisms
- ✓ Zero scripting configuration

HIGH AVAILABILITY

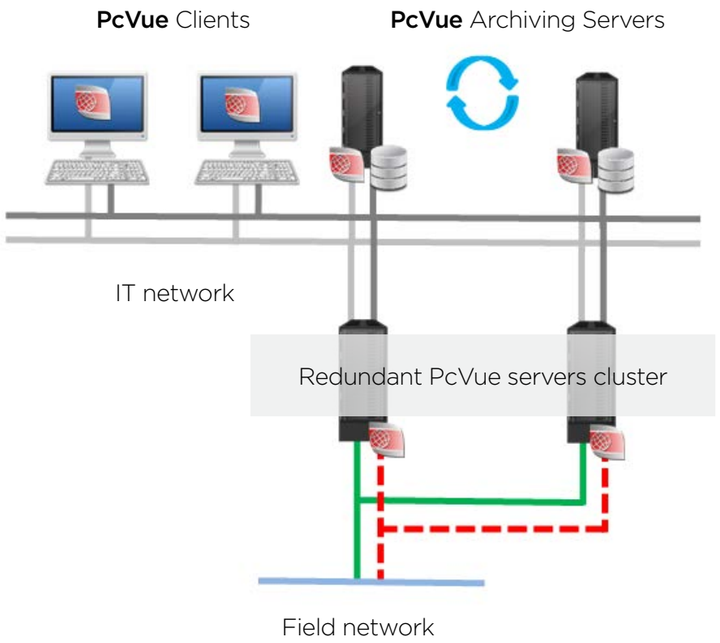
When a higher availability and resilience are required, this architecture, more distributed, brings redundancy and roles separation.

It is similar to the multi-station architecture but with data acquisition server and historical data server separation and redundancy.

The inter-station network (LAN and/or WAN) can be duplicated, as can the field network. There are then two independent paths between any client station and the data sources. Each PcVue client station maintains two connections with each server station and will attempt to switch between servers only when both of these connections are inoperable.

On an Industrial Ethernet network, PcVue can manage both communication media redundancy and device-level redundancy.

Each station can archive the data to improve the historical data availability.



BENEFITS

- ✓ Very high level of availability
- ✓ Continuity of service

FEATURES

- ✓ Secure Client-Server setup with dual networks
- ✓ Native redundancy for real time and recorded data
- ✓ Data processing and field networks data load optimized

DISTRIBUTED ARCHITECTURE

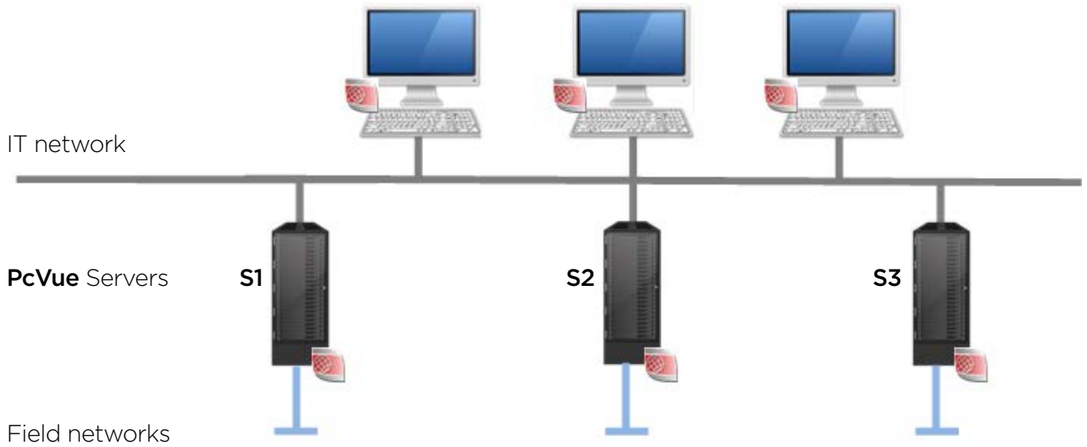
This distributed multi-platform architecture allows client stations to access information from servers connected to different field networks. Thus operators can supervise from the same client stations different installations.

BENEFITS

- ✓ Hypervision of separated processes
- ✓ Scalability
- ✓ Cost effective architecture rationalizing client stations

FEATURES

- ✓ Clients station get data from several communication servers connected to independent processes



MOBILE ARCHITECTURES

BENEFITS

- ✓ Monitor and control your installation from anywhere
- ✓ Improve the efficiency of your teams
- ✓ Take advantage of the growing availability of data
- ✓ Display information in the context of location/role
- ✓ Protect your mobile data

FEATURES

- ✓ A dedicated mobility server with a Contextual Logic Engine
- ✓ A contextual mobile HMI with proximity & location services*
- ✓ A mobile interface with notification based services
- ✓ A rich graphical HTML5 web interface
- ✓ Works with standard smart mobile devices
- ✓ A Secure design

Solutions suitable for any needs
Used independently or together

Context-aware mobile solutions

Navigation based solution

Control your installation remotely from an HTML5 web browser using **WebVue**.

Access the mimics, historical curves, alarm lists, view and control the data.

Situational awareness solution

The **TouchVue** mobile application allows mobile operators to be notified of events on their smartphones and to access the real-time values of the variables and the alarm and history lists as well as the trend curves. They can thus react quickly by acknowledging an alarm, or by forcing a set value for example.

Location based solution

The **SnapVue*** mobile application allows a user, depending on his or her profile, to automatically obtain the contextual information in the zone where he or she is located. He or she has access to the actions he or she can take from the smartphone such as read mobile Instruction, analyzing trends, consulting a manufacturer's record or exchanging instant messages with other users.

This mobile application is based on the existing indoor/outdoor geolocation technologies (bluetooth tags, NFC chips, QRCodes, GPS, WiFi, ...).

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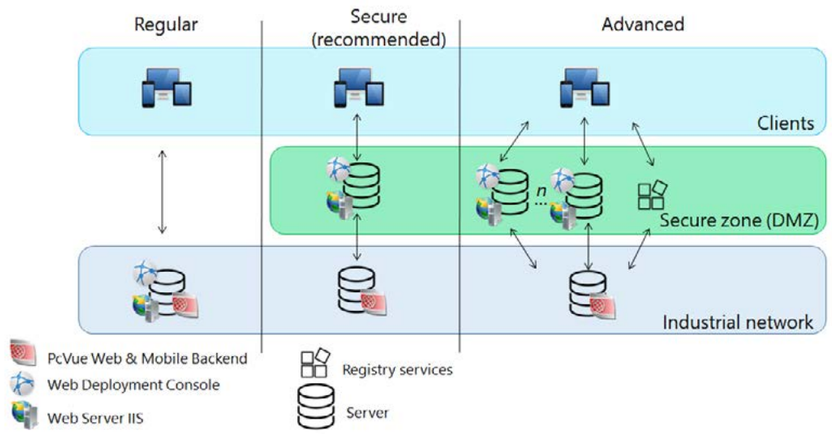


Web & mobile deployment

The deployment of mobile solutions is based on a gateway server that allows smartphones or tablets to access **PcVue** data to navigate a project, to be notified of events, or to obtain contextual information.

For browsing from an HTML5 web browser, the gateway server can rely on an IIS server to provide different Web services to **WebVue** WEB clients.

It can also rely on an RDP server and the remote desktop functionality of Windows to allow access to the project. No special installation is required on smartphones or tablets, which makes it easy to deploy the application on-site and remotely.

The **TouchVue** notification application will also interface with the IIS server to interact with the **PcVue** project.

The gateway server may also host a context-sensitive mobility server for the **SnapVue** geolocation application

The Gateway Server may be deployed on the field network or in a DMZ for more security in the case of the smartphones are outside a local area network.

SECURITY

PcVue architectures are perfectly compatible with the precautions to be taken to protect the system

For example:

- to segment the various networks (for example, IT and field) by implementing separate physical networks and / or creating separate logical zones (VLANs) which require an identical level of security
- filter data using firewalls.

The use of a DMZ and routers also makes it possible to isolate networks from the outside and avoid unwanted intrusions.

The implementation of VPN tunneling solutions may also be necessary to protect traffic between two components of the network. Typically, a VPN can be set up between a **PcVue** acquisition station and a PLC communicating via a TCP / IP protocol, or between several remote monitoring sites communicating with TCP / IP inter-station messaging.

- ✓ The exchanges between the Web server and the terminals use secure sockets under HTTPS
- ✓ System-wide user access is managed by Windows Active Directory allowing single sign-on (SSO)
- ✓ DMZ(demilitarized zone) compliant

VIRTUAL ENVIRONMENTS

In this configuration, the monitoring applications run on machines administered by an IT department. A single physical machine with a VMware virtual environment or equivalent, hosts all workstations in independent virtual machines.

PcVue supports virtual environments such as VMware or HyperV.

- ✓ To reduce the number of physical station
- ✓ To reduce administration effort
- ✓ No installation and low cost for client station

EASE OF CONFIGURATION

The deployment of PcVue solutions takes place via configuration wizards without programming, simplifying the implementation and the scalability of the system.

Redundancy mechanisms are native and automated.

- ✓ Setup wizards
- ✓ Zero script
- ✓ Automatic redundancy

SUPPORTED PLATFORMS

PcVue Version	Environments	32 bits (x86)	64 bits (x64)
PcVue 12	Windows® 7 with SP1 - Professional, Enterprise and Ultimate Editions	No	Yes
	Windows® 8.1 Professional and Enterprise Editions	No	Yes
	Windows® 10 version 16078 or later - Professional and Enterprise Editions	No	Yes
	Windows® Server 2008 R2 with SP1 - Web, Standard, Enterprise and Datacenter Editions	N/A	Yes
	Windows® Server 2012 - Foundation, Essentials, Standard and Datacenter Editions	N/A	Yes
	Windows® Server 2012 R2 - Foundation, Essentials, Standard and Datacenter Editions	N/A	Yes
	Windows® Server 2016 - Essentials, Standard and Datacenter Editions	N/A	Yes
	Windows® Server 2019 - Essentials, Standard and Datacenter Editions	N/A	Yes
	Microsoft® SQL Server 2008 R2 (1)(3)	N/A	N/A
	Microsoft® SQL Server 2012 (1) (3)	N/A	N/A
	Microsoft® SQL Server 2014 (1)(2) (3)	N/A	N/A
	Microsoft® SQL Server 2016 (1) (3)	N/A	N/A
	Microsoft® SQL Server 2017 (1) (3)	N/A	N/A

Please contact us before using any of these:

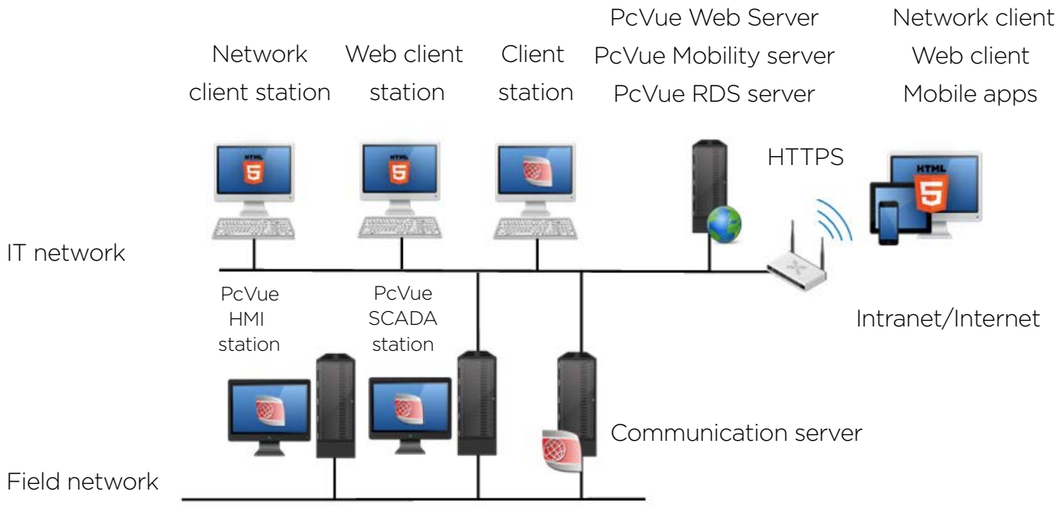
- Windows Server for Embedded Systems and all other Embedded systems
- Any operating systems hosted in a system virtual machine such as Microsoft® Windows Virtual PC, Windows XP Mode, Hyper-V, VMWare®...

Nota (1): For each supported version of Microsoft® SQL Server, the following editions can be used depending on your needs and their specific constraints: Express, Workgroup, Standard and Enterprise.
In particular, please note that Express Editions do not include the SQL Server Agent service. As a consequence, the scheduling of HDS replication tasks has to be done outside the Database Manager (PcVue built-in timetables, HDS maintenance plan, Windows® task scheduler...).

Nota (2): Microsoft® SQL Server 2014 does not support Windows Vista.

Nota (3): Regarding Microsoft® SQL Server we deliver the latest corresponding SQL Server Express Edition

SPECIFICATIONS



Features	2D Mimics display	3D Mimics	Alarms & Events	Recipes	Historical trending & log	Scripting VBA & SCADA-Basic	Native communication drivers	OPC Client	OPC Server	Client-Server & redundancy	Remote Desktop Server Environments	Development option	Notes
HMI Station	•	•	•	•	•	•	•	•	•			•	A PcVue Station without client & redundancy support. Suitable for stand-alone application
SCADA Station	•	•	•	•	•	•	•	•	•	•		•	A full functionality SCADA station for distributed and/or redundant architectures
Communication Server			•	•	•	•	•	•	•	•			A full SCADA functionality Station without mimics visualization
Client Station	•	•	•	•	•	•			•	•			Client without direct communication with equipment. Requires a SCADA Station or a COMMUNICATION Server available on the network
Engineering Station	•	•	•	•	•	•	•	•	•	•		•	A full functionality SCADA station with a limited Runtime period
Network Client Station	•		•	•	•	•			•	•	•		Client Station without hardware protection dongle. Suitable for Remote Desktop Server environments
WebVue Client Station (Web)	•		•		•								It provides remote display and control of the process using an Internet or Intranet connection.

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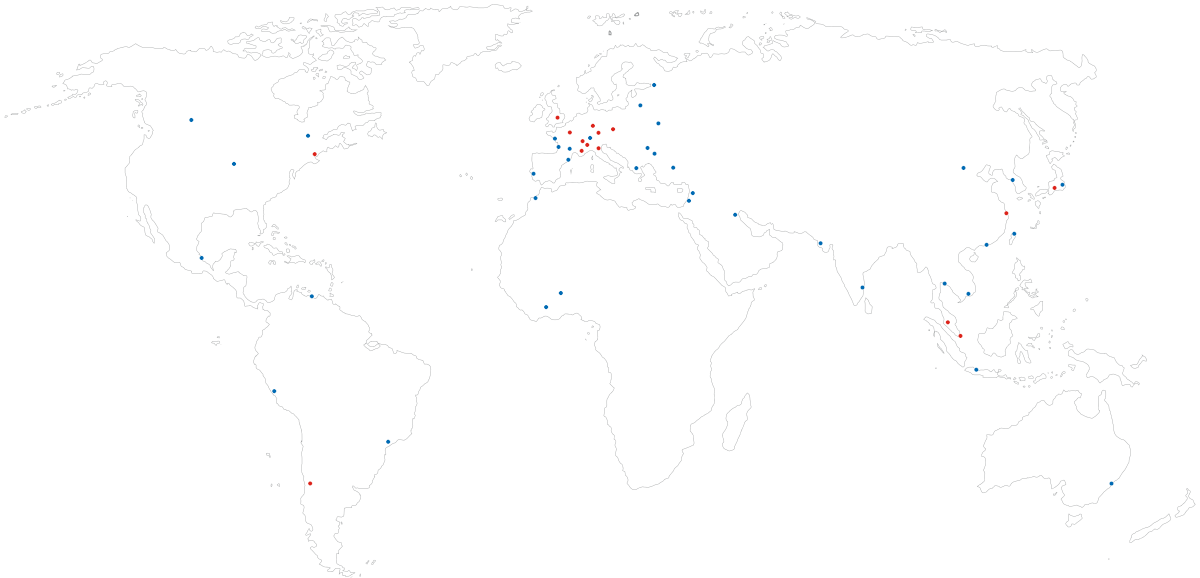

ISO 9001 and ISO 14001 certified

Microsoft CERTIFIED Partner