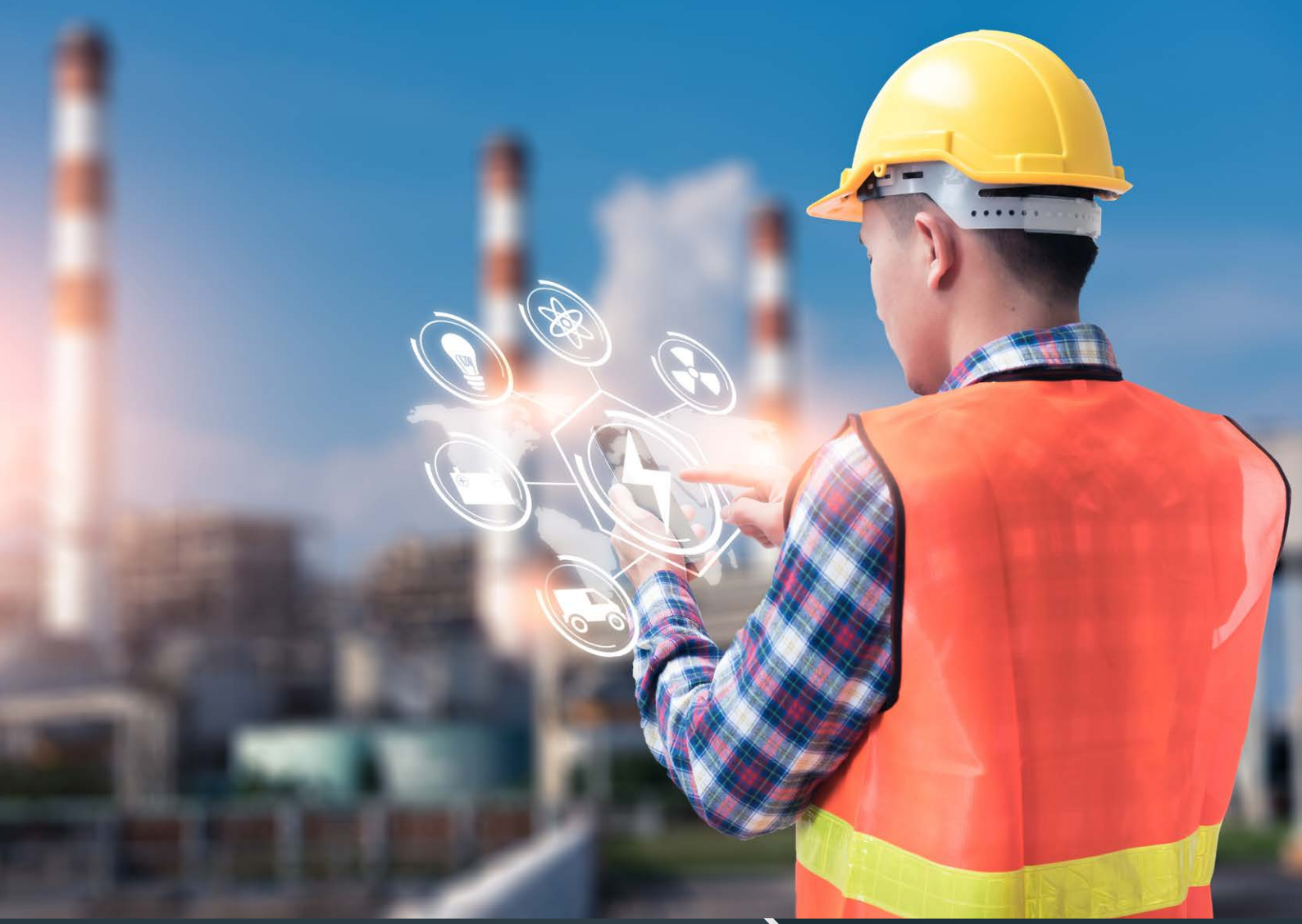


CYBER & SECURITY SOLUTIONS

VBRAIN

LEONARDO

Industries, enterprises, and critical infrastructures are increasingly realizing the benefits of advances in digital technologies through the development of the Industrial Internet of Things (IIoT). This evolution enables the effective exploitation of collected data through advanced analytics, supporting operational decision-making, smart maintenance, and early warning systems for safety and security.

VBrain is Leonardo's platform for the supervision and automation of buildings, plants, and critical infrastructures. It monitors and controls systems, sensors, and devices by leveraging collected data to ensure operational efficiency, business continuity, optimized performance, proactive prevention, and timely early warnings.

Industrial transformation combines advanced operational technologies and the Internet of Things to create digital enterprises that can communicate, analyze data, and turn information into intelligent actions.
Connected and smart technologies unlock new value for industries and critical infrastructures, driving efficiency, resilience, and data-driven decision-making.

This digital evolution must be supported by the seamless integration of existing supervision, control, and data acquisition systems across industrial plants and infrastructures.
At the same time, increasing connectivity calls for a strong focus on cybersecurity, ensuring reliability, protection, and trust throughout the digital ecosystem.

VBrain is Leonardo's unified platform designed for industrial and critical infrastructure environments. It provides a common operational framework to remotely monitor and control mechanical, electrical, and plumbing systems across plants, buildings, and infrastructures. By consolidating operations into a single intelligent platform, VBrain empowers organizations to optimize performance, enhance operational awareness, and ensure resilience and business continuity of critical infrastructures.

VBrain is a suite composed by many modules developed following the OPC UA standard and the criteria of Cyber Security by design VBrain allows the integration and management of a wide range of heterogeneous systems implementing recognized standards both for signals acquisition and interoperability with third party systems through the Fieldbus element (OPC Unified Architecture, OLE for Process Control, Automation Device Specification, MODBUS, Simple Network Management Protocol, BACnet and others).

VBrain provides a real-time control of the operations, constantly guaranteeing service, timeliness of intervention and efficiency in maintenance, in order to prevent or reduce anomalies or interruptions of continuity of the operational service for local or distributed architectures.

VBRAIN MAIN FEATURES

- Alarm detection based on priority levels and on thresholds defined in the configuration phase.
- Acknowledgment system of alarms with tracking in a Database
- Detection of data acquisition failure
- Creation of Alarms and Aggregate and Compound Measures
- Application of expressions for the remodulation of the acquired values
- Correlations of Events and Alarms
- Execution of pre-configured sequences with verification of preconditions and postconditions for each step

VBrain is designed for a wide range of applications, in particular:

Building Management System
VBrain can be used for the integrated management of all the technological systems of a building, as access control, video surveillance, fire detection, lighting control, elevators, air conditioning, energy plants.

Data Center Management
With VBrain suite is possible to integrate in a single system all technological equipment of a data center such as access control, fire detection, lights, air conditioning and network equipment.

Infrastructure Monitoring System
One of the VBrain hallmarks is to create geographically distributed systems where each node, while remaining independent, can be connected to higher hierarchical nodes. This allows to create distributed architectures and above all to create local and national operating rooms where to manage large scale infrastructures. Each Operation Centre can be provided in Business Continuity and Disaster Recovery status, command execution, ...) between the VBrain Server configuration.

VBRAIN COMPONENTS

VBrain is a modular solution that is basically composed by the following applications:

VBRAIN SERVER: the core application, responsible for data acquisition from devices, data elaboration and normalization, commands actuation, alarms generation and publication of all measurements variations.

VBRAIN SUPERVISOR: responsible for granting service continuity.

VBRAIN DATA MANAGER: responsible for logging all acquired and elaborated data.

VBRAIN CONFIGURATOR: used to configure the VBrain system instance environment, logics and users.

VBRAIN NOTIFIER: for forwarding of information related to measures towards the operators through different communication services or peripheral devices (e-mail, SMS, printers, ...).

VBRAIN SCHEDULER: for the configuration and scheduling of automated tasks like commands.

VBRAIN WORKFLOW: for the management of automated activity flows, to design for example the actions required after that a specific alarm occurs on the system.

VBRAIN EXPORTER: to expose some REST APIs to third -party applications in order to allow the latter to send commands configured in VBrain and read the status of measures acquired by VBrain.

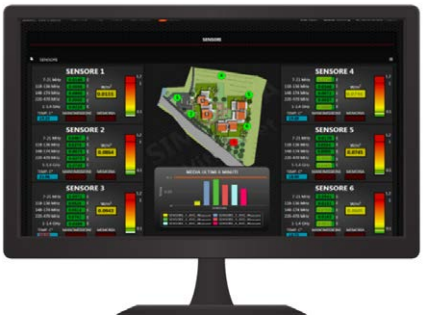
VBRAIN WEB SOCKET: to create a secure encrypted web socket channel for data exchange (measurement components and the VBrain Web Client module in order to optimize traffic and be compliant with the HTML5 standard.

VBRAIN WEB CLIENT: to offer the operator a complete and efficient view of the operating state of all the monitored components of process, plant, site. Each graphical interface is defined accordingly to exact specifications, depending on the monitored environment and assets and customer needs.

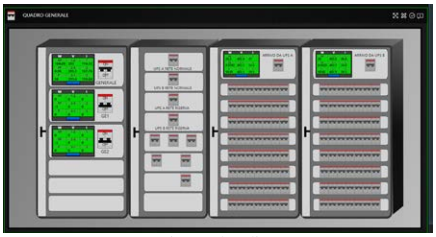
VBrain Web Client has been designed and implemented on the basis of the latest technologies.

The main elements are:

- Graphical interfaces;
- Visualization of the operating state and related measures of each device/plant/site;
- Treeview composed of nodes that allow the access to thedifferent monitored devices/ sites interfaces. Each node assumes a different color based on the status/condition of all the measurements present in the related interface
- Operator commands management
- Reporting (allows users to access and consult stored data - both in runtime and historian DB - in order to perform analysis of the information)



VBrain Web Client


VBrain Web Client

VBrain Web Client

VBRAIN IS SECURE BY DESIGN AND ENSURES THE FOLLOWING PILLARS:

- → **Confidentiality**: only allow access to data for which the user is permitted
- → **Integrity**: ensure data is not tampered or altered by unauthorized users
- → **Availability**: ensure systems and data are available to authorized users when they need it
- → **Resiliency**: ensure systems are always running with policies for switching in case of fault

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