Bohemia Automation

EVA ICS v4

an extended automation platform in Communal Energy Systems

designed to revolutionize DCS/SCADA/MES deployment

High Energy
Smart City
Machinery
Defense
Smart Farming
Renewables

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EVA ICS v4

is an extended automation platform that seamlessly orchestrates existing (legacy) hardware while swiftly integrating new dedicated hardware for automation control and monitoring. It is perfectly aligned with stringent security measures critical for handling infrastructure and energy-related solutions at both local and national levels.

It offers a substantial time-saving advantage by leveraging pre-built components, integrations, community resources, and documentation, accelerating system development significantly, and providing a robust foundation for constructing flexible, scalable, and efficient solutions, delivering them **10** to **20** times faster than conventional development approaches.

HMI App demo

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Key Reasons to use EVA ICS v4

Modular components / Ready-made integrations:

Pre-built and modular components for key functionalities like pub/sub communication, data storage, and a wide range of popular fieldbus protocols (Modbus via RS485 and BUS/RT, 1-Wire, Ethernet/IP, TwinCAT, OPC UA, SNMP) modern IoT protocols (MQTT, HTTP(s) etc.)
Available SDK: Rust, Python, JS/TS, C+
WebEngine + WebEngine-React modular pack for quick creation of fully customized SCADA/HMI interfaces with low cost
Flexible dashboard constructor for regular operators, industrial kiosks, field engineers

High level of security:

EDGE deployment enables the creation of a fully isolated cloud with no Internet access for to host mission critical components on private hardware.
Flexible access control lists for users and node-to-node communication.
Industrial-grade encryption in all external communication (AES-256 GCM)
All communications are additionally encrypted with industrial-grade algorithms (FIPS-140 complaint)

Rapid deployment:

Modern DevOps deployment approach: deploy configuration templates on local and remote machines.
Digital twins for research and testing tasks out-of-the-box, to simulate the whole setup in parallel to try new features before applying them in production.
Native services, an internal Docker app launcher, or use the platform in existing Docker/Kubernetes orchestration.

Unlimited Scaling:

Fastest and the most flexible platform available on the market to process millions of events on a single machine to scale setups to an almost unlimited number of real-time replicated nodes with fully modular architecture. Robust in-house replication protocols for nodes in zones with extremely low connectivity coverage.
Zero-failure replication technology guarantees that all data is always replicated between.

Machine Learning Integration:

Data science tools that provide an easy way to retrieve and format necessary data frames from EVA ICS databases, come equipped with pre-configured TensorFlow models that are ideal for typical industrial IoT research tasks such as predictive maintenance, accident prevention, and auto-regressive planning. Jupyter-lab and R-Studio fully compatible.

Data Storage:

Multiple databases support for storing archive data, including traditional SQL and time-series based (TSDB).

Community Contributions/Reduced Debugging Time:

The open-source model stimulates the integrators' community to contribute their modules, configurations, and scripts. Modular and well-tested components reduce debugging and fixing issues time. Comprehensive documentation and support resources for quickly find solutions to common challenges and troubleshoot issues.

Complete documentation

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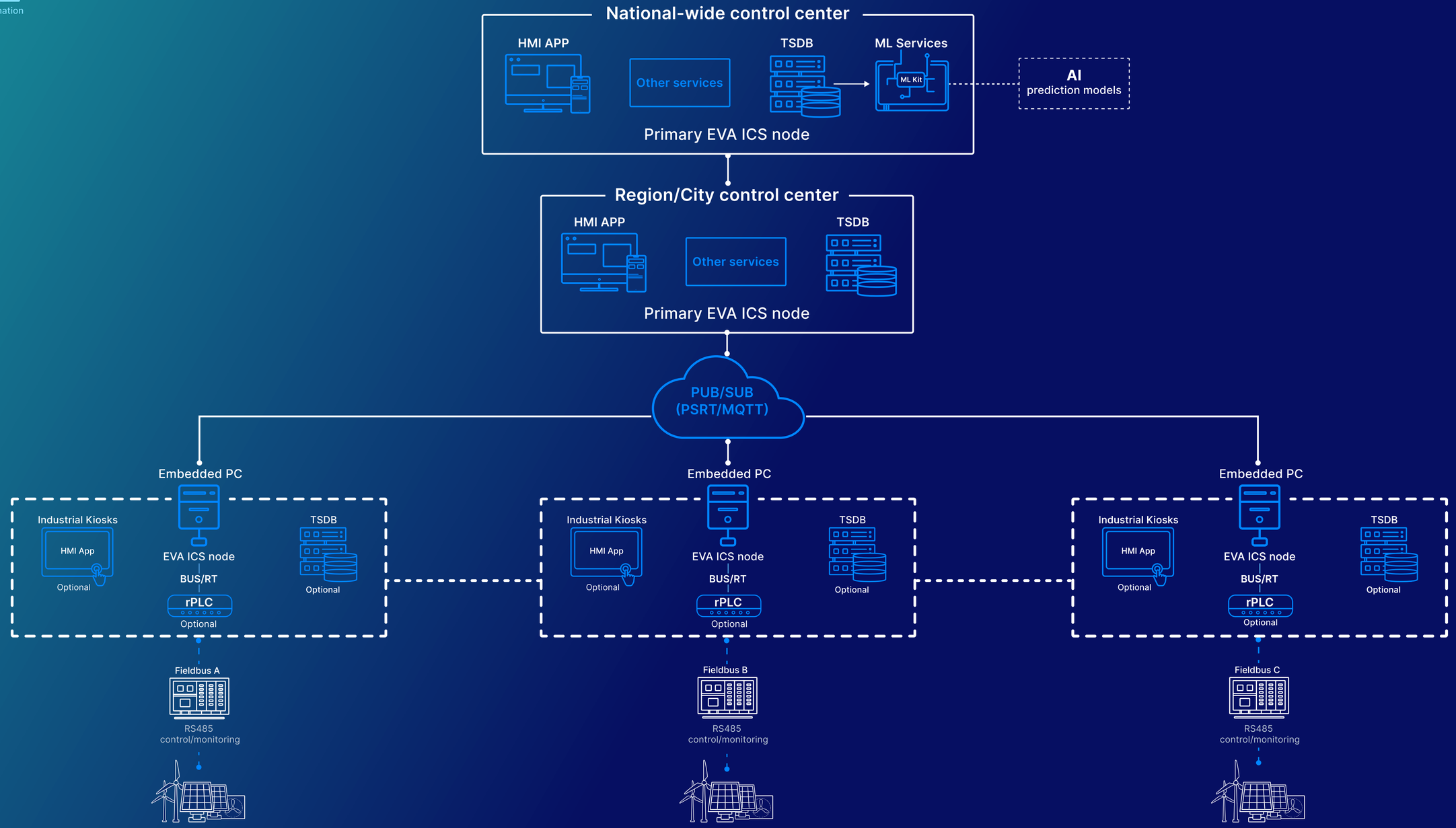
Architectural diagram example



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Since 2012, Bohemia Automation (formerly the automation department of Altertech group) has been a pioneering company in the development of new IIoT technologies and cloud-SCADA products.