



openECA

a complete analytics product development template

openECA provides a unified environment for modeling and deployment of analytics. It includes services for configuration, creation and application of data structures, as well as measurement and result mapping.

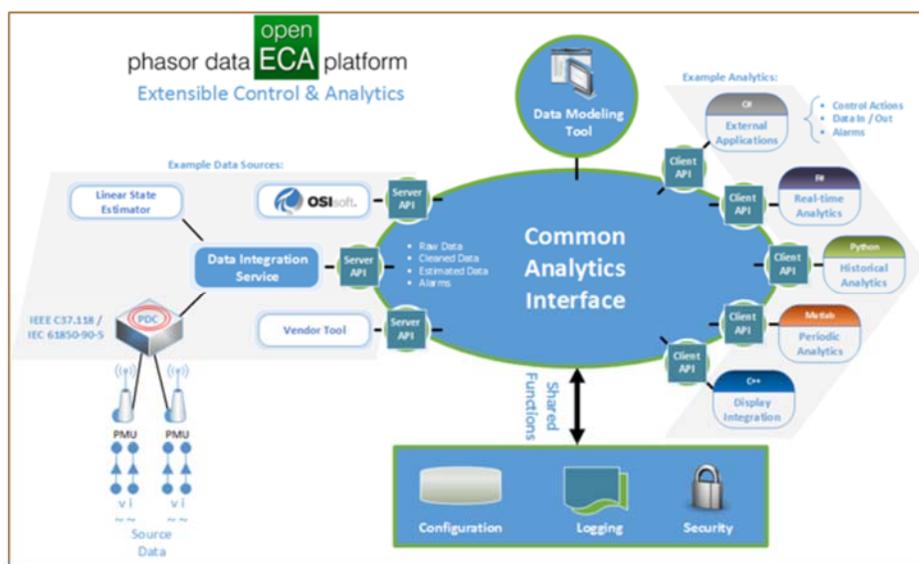
openECA reduces the cost and accelerates the deployment and on-going development of real-time decision support tools, automated control systems and off-line planning systems that incorporate phasor data.

Business Value

The openECA platform advances the production deployment of robust and high-availability synchrophasor-based software applications by creating a structured approach to the management of real-time and historical synchrophasor measurements within a platform that can effectively handle the most demanding of synchrophasor data system requirements. openECA is scheduled for release in the Fall of 2017 following the end of US DOE sponsored project OE-778.

Benefits

- Lowers the cost to add and maintain production analytic tools that require streaming or historical synchrophasor data
- Simplifies end-to-end configuration and change management
- Improves the availability of phasor data with greater visibility of phasor data quality through use of a multi-tier bad data detection system
- A robust, scalable solution to support phasor data infrastructures of any size
- Complements current phasor data architecture and supports integration with other data sources such as SCADA



openECA allows client analytics to quickly connect to multiple phasor data sources.

openECA achieves much of its value by providing a common collection of methods to programmatically integrate a synchrophasor analytic, such as oscillation detection, with real-time and historical synchrophasor data. These programmatic methods avoid much of the initial and on-going work to map the analytic into a specific utility's infrastructure. Called the "Common Analytics Interface", or CAI, this highly-performant publish/subscribe interface reduces configuration complexity and significantly simplifies the coupling of analytics to phasor data.

openECA has a flexible library of API functions

- Measurement definitions are automatically created from phasor data sources using a flexible library of data types.
- Measurement validation, including measurement flat-line detection can be performed by the platform.
- Core functionality includes data acquisition and measurement routing
- Access to the results from the LSE either individually or as groups of actual and estimated values
- System performance metrics can be automatically archived
- Open APIs are available for multi-vendor support in C#, C++ and JAVA
- Web-components are cross-platform including tools for adapter configuration management.

openECA includes an open-source Linear State Estimator

- The openECA platform natively includes a Linear State Estimator with a topology processor.
- The LSE reduces measurement error, extends observability and contextualizes phasor data within the electrical network model.

The openECA platform has been tested using multiple analytics

- openECA has been tested with oscillation assessment tools available from Trudnowski and Donnelly Consulting Engineers. These include both oscillation detection and mode damping monitoring with decision-support software to provide operations personnel with actionable information.
- Additional open source analytic tools are available, such as those for local and regional VAR control.

Hosting Requirements

- Hardware: Requires 64-bit hardware and a minimum of 8 GB of memory. Exact requirements are a function of network model size. This hardware can be virtual.
- Operating Systems: Windows (64 bit) Windows Server 2008 (or later) is the primary platform with the .NET 4.6 framework. Builds for Linux and Apple OS are available.

openECA Data Modeling Tool



openECA Performance Monitor



Product Maturity

openECA is a new product. The Alpha Version of openECA was released in January 2017 and demonstration testing of the Beta Version will start in April 2017. Version 1.0 of openECA is expected to be released in October 2017.

Maintenance Services

GPA offers annual product maintenance agreements to cover typical business hours, or 24X7 for critical systems as well as customized services that are tailored to meet the needs of individual utilities.

Related GPA Products

- The [openPDC](#) is a high-performance, high-availability and feature-rich phasor data concentrator that handles all phasor protocols.
- [SIEGate](#) significantly improves security while reducing the administrative burden and cost to exchange grid data.
- The [substationSBG](#) is a phasor data gateway purpose-built for use in substations.
- [PDQTracker](#) stores statistics, raises alarms and reports on phasor data quality and availability.
- The [PMU Connection Tester](#) is used to determine if phasor data streams conform to standards.
- [Project Alpha](#) is a Visual Studio solution that jump starts the processes of building and debugging phasor solutions.
- The [Synchrophasor Stream Splitter](#) is used to replicate and route phasor data.

The Benefits of Open Source

All GPA software is Open-Source Software (OSS) published on GitHub under the permissive MIT license.

With OSS, risks and costs are reduced. There is no vendor lock-in, software can be tested in-situ prior to making business commitments, and systems can be easily adapted to meet changing requirements. Unlike commercial software, OSS is peer reviewed to assure reliability, stability and security.

For more information



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