



Integrated Access and Analysis of Production and Operational Data

The Challenge

Secure, timely access to production and operations data, and the associated reference material is vital for any large and complex operation.

Managing complex operations, with large data requirements in an environment of rigorous regulatory compliance, is the challenge of almost all industries today. Combine this with multiple industry standards, and the integration and collaboration of many disciplines and sites, and the business landscape becomes disperse and chaotic. The challenge is in understanding and using the data, in context and within security constraints. Gaining full advantage requires perspective, analysis and a logical, integrated interpretation of relevant data.

The Solution

P2 Server provides secure access to data from a diversity of sources, and stores a comprehensive, contextual model of this data. P2 Server performs calculations and analysis, provides KPIs, and also interfaces with other systems.

Using the P2 Server, data from field equipment, process control systems and management systems can be collated in real-time, and on ad-hoc or discrete time periods such as per shift, per production day etc. P2 Server is a reliable and easy way to connect, manage and analyze production and operational data. Real-time and historical data from field equipment, process control systems, laboratory systems and other sources can be accessed on demand, ready for reporting and analysis, or as raw data for further processing by the P2 Server Calculation Engine, and then on to external systems. Within the P2 Server Data Dictionary, data structures are modelled into assets and categorized hierarchically to provide easy navigation and comprehensive overviews.

What is P2 Server?

P2 Server is the foundation technology from which the intelligent and integrated solutions for any production operations organization can be delivered.

P2 Server and its integration features, in addition to the suite of P2 Production Operations Modules, provide key functionality to operations personnel, by seamlessly integrating the P2 Production Operations Product Suite and third party applications enabling ease of access to data in context through P2 Explorer for real-time visualization.

For organizations using production, operational, environmental, maintenance and financial data, P2 Server provides important benefits by turning this data into intelligent business solutions.

- P2 Server ensures integrity, by extracting data straight from its source (one version of the truth).
- Vendor-independent, 'plug-and-play' approach to obtaining data from disparate sources.
- Automated discovery of new data items being made available in source systems.
- Access to supporting information and content, such as equipment manuals, documents, P&IDs and other diagrams, images, and web services.
- Fast performance, near real-time delivery of operational data to the web.
- Data structures are modelled in the P2 Server Data Dictionary. Data hierarchies provide search and navigation capabilities, and templates are used to digitally define asset structure.
- The P2 Server Calculation Engine manipulates and calculates data, from any connected data source, ready for further analytics.

Key Features

Connecting to Data Sources

The P2 Server Data Broker communicates between external data sources through a library of proprietary and standards-based interfaces (P2 Adaptors), and is the prime mechanism by which P2 Server is able to capture and relay data.

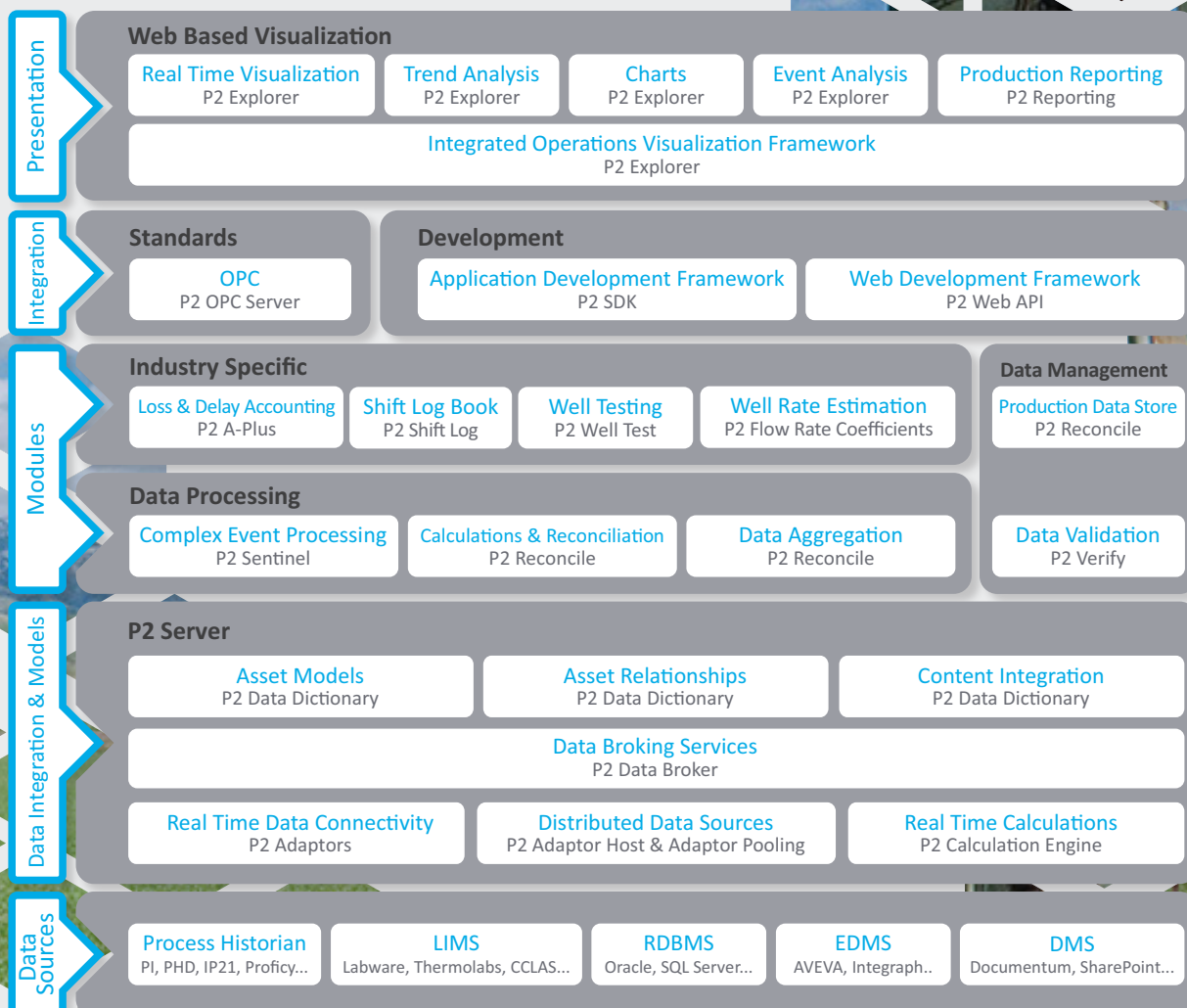
The types of data accessible via P2 Server include:

- Real-Time and historical data from a plant historian such as Honeywell PHD, OSI PI, or Wonderware Industrial SQL, etc.
- Relational databases such as Oracle and SQL Server.
- ERP and maintenance systems.
- Laboratory data.
- Manually-entered production and operational figures.
- Production Allocation and Reporting data.
- Results of calculations.

Enhancing and Analyzing Data with Real Time Calculations

The P2 Server Calculation Engine provides advanced functionality to calculate and evaluate existing data derived from any of the P2 Server data sources. This allows for complex, time-based analysis of production data with ERP, Financial, Maintenance, or any other data source, making it possible to perform in-depth analysis of results such as performance and reliability indicators, such as KPIs. Statistical processing (averages, standard deviation, integral, and so on) of current, previous, and variance values for source data (such as tag values) can be used for performance evaluation and monitoring.

P2 Production Operations Suite Functional Reference Model

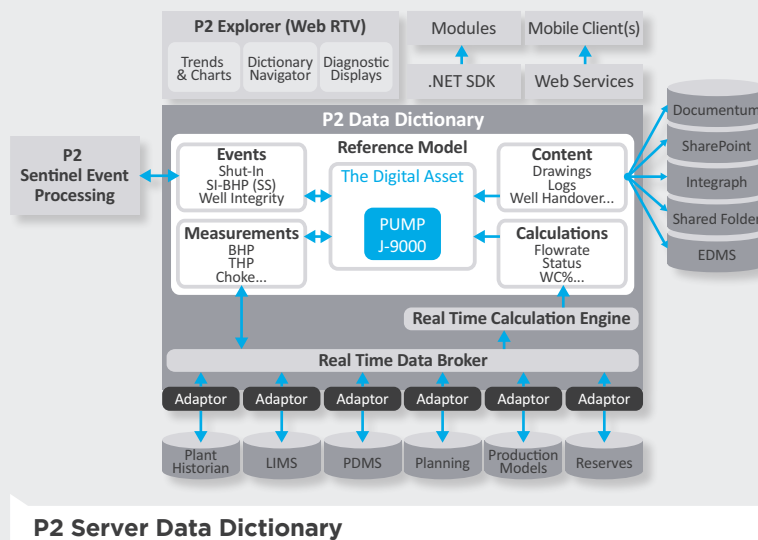




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Contextually Modelling Data to Describe Assets

The P2 Server Data Dictionary is used to model metadata to describe physical equipment (which P2 terms an 'Entity'), with supporting documentation, maintenance schedules, and any other items that form a relationship to the entity. Hierarchical structures in the Data Dictionary connect related entities, whilst templates describe assets in terms of properties and attributes, resulting in a comprehensive asset model. The Data Dictionary structures can model entire assets, with all entities described down to the level of tag values.



The P2 Production Operations Modules

P2 Server is an integral part of the P2 Production Operations Product Suite. P2 Production Operations Modules use and enhance the resources available to P2 Server.



P2 Explorer

P2 Explorer provides real-time visualization to the data accessed by P2 Server. P2 Explorer presents relevant business data, logically and clearly in a structured, graphical web interface.



P2 Verify

P2 Verify is a web-based solution for operations personnel and domain specialists to collect, validate, approve and publish operational data, using a configurable approval workflow. Data can be manually captured, or can be sourced from P2 Server data sources.



P2 Shift Log

P2 Shift Log provides a configurable solution in a single environment that captures performance information for all levels of business operations. Users can view, record, and manage events and information during a shift, in relation to the assets described in the Data Dictionary.



P2 Well Test

P2 Well Test provides a web based user interface that allows operators and engineers to plan, execute, capture, calculate, and analyze well test data from a variety of origins, in a consistent manner.



P2 Flow Rate Coefficients

P2 Flow Rate Coefficient provides an environment to leverage the validated and approved well test results from P2 Well Test to derive time aware theoretical multiphase flow rate coefficient variables.



P2 A-Plus

P2 A-Plus provides the tools to effectively manage production availability and loss. It facilitates the detection, allocation, analysis and reporting on downtime and loss associated with events, with access to the latest information.



P2 Reconcile

P2 Reconcile stores essential production data, and manages asset structure and associated complex calculations. Used to configure intricate calculations directly relating to the asset model, it stores validated data calculation results, ready for reporting and other outputs.



P2 Reporting

P2 Reporting is the operational management reporting component in the P2 Production Operations Suite. Using P2 Server data as its source, P2 Reporting provides a common platform for viewing, printing, managing, configuring, and exporting reports, such as daily operations, monthly production, consumables & equipment and compliance reports.



P2 Sentinel

P2 Sentinel has an automated, complex event processing and action engine, which monitors the behavior and performance of your assets. It is designed to rapidly access and analyze vast amounts of data (leveraging P2 Server's capabilities) and provide immediate, prioritised notifications, as well as detailed statistical and analytical reports.



P2 Integration

The P2 Server SDK, web services through the P2 Web API and OPC Server enables you to extend P2 functionality. P2 Server SDK provides out of the box access to the Data Dictionary components for custom applications and Adaptors.

Solution Benefits

- Globally sourced data available to relevant users, based on a set of centrally controlled privileges.
- Integrity of data is maintained, as it is taken directly from the source.
- Calculations and analysis applied to data to produce diagnostics, KPIs, reliability indicators, predictive trending.
- Data structures are organized according to their properties and attributes, and relate directly to data in external data sources.
- Data is contextualized in the Data Dictionary, with its relationships to underlying assets clearly defined.
- Extendable functionality through the P2 Server SDK.
- Access to supplementary systems, leveraging the available source data.
- Powerful troubleshooting and auditing capabilities.

Technology Vitals

P2 Server consists of a set of core services that provide access to Data and Structure using a Service Oriented Architecture. It runs on the Windows Server platform and employs core Microsoft Technologies. P2 Server Adaptors can be used to interface to external systems using either Native or Managed .Net technologies. P2 Server can be consumed by a range of technologies through a set of APIs, both locally on the server and remotely through Web Services and the P2 Server SDK APIs. The P2 Data API provides a single interface to data, regardless of the technology of the external source systems, and can be consumed through an XML based interface or the managed .Net API.

P2 Server makes use of either an Oracle or a Microsoft SQL Server database for storing its configuration.

Contact P2 Energy Solutions, enquiries@p2energysolutions.com,
for more information or for a demonstration.

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