PredictEnergy

Product Overview

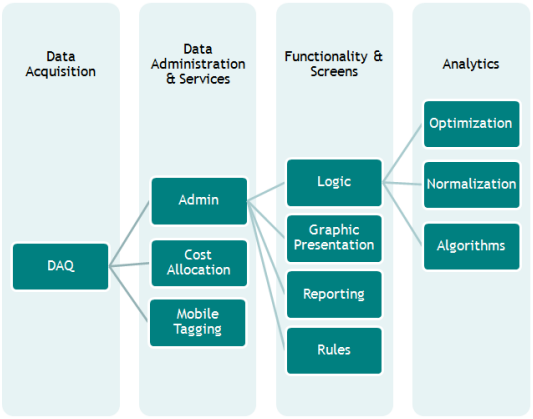
System Hosting and Environment

PredictEnergy™ is hosted in a virtual machine data center using multiple servers. Our servers use a high performance operating system with extremely high bandwidth access. Our virtual machine permits us to interface and present information for display to a wide range of computer devices. Our environment configuration permits us to easily change the parameters of our system to tailor the environment to meet our clients' ubiquitous application and device performance needs.

Software Architecture

The PredictEnergy™ software platform is Java EE compliant, conforming to Java Platform, Enterprise Edition application standards. J2EE applications provide two important advantages; (1) Application development can be achieved using object technologies and rapid application development techniques, and (2) Provides the highest versatile capabilities for distributed, data centric systems across multiple computing tiers. This is especially important when dealing with multiple digital data input sources which require comparison, aggregation, analysis and presentation in real-time.

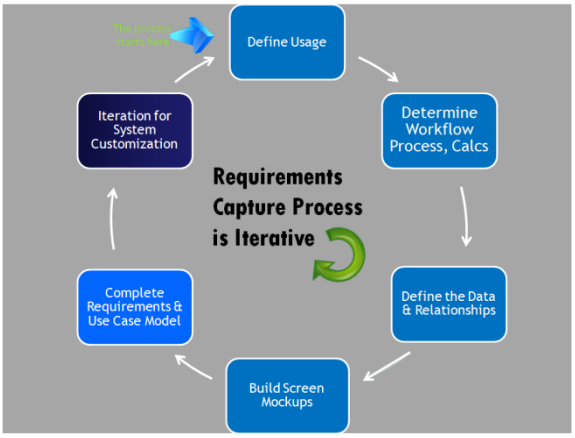
Configure vs Customize



The PredictEnergy™ application is built using service modules which are configured to meet the client requirements. Data Acquisition, Data Services, Functionality and Analytic services are predefined and programmed to be configured based on the client's requirements. Using standardized module services, allows us to improve delivery time and reduce development cost. The configuration vs. customization decision is determined during the requirement capture process. To tailor the system to the client, unique requirements are identified and customization requirements are defined, managed and integrated into the project plan.

Requirements Capture Practices

"Understand the client's needs … develop code in small increments …provide the client continuous feedback to gain direction."



Helio Energy Solution's Business Analyst use a modified version of the Agile rapid application development process. We believe in getting requirement iterations completed in small use cases and cooperative stages for incremental delivery. Typically our modeling results are input to our application configuration process. Thus, the output of our requirements process is an application configuration document. Unique client requirements that need tailoring or customization are formulated using the same iterative use case process with slightly different deliverables to support their development.

An important aspect of the requirements capture process is determining features and functions important to the team. Basic functionality needed to monitor and review energy use is part of the PredictEnergy™ core capability, such as:

- Web page and tabs to segregate functional views
- Specialized Key Performance metrics for analysis
- Energy cost allocation by time period selected
- Multiple monitoring and analysis graphical selections
- Administration of users and comparison parameters

For the P-1069 Monitoring Project it's also anticipated that some advanced features may be desired by the Client team, such as:

- Benchmark Target Setting to preset energy use and cost targets and benchmarks for best-in-class energy usage, KPI & cost parameters analysis
- Benchmarks and Baselines assignments and views to determine current performance against standards
- True Energy cost allocations based on true utility tariff schedules to support daily and seasonal load analysis
- Normalized Comparisons of environmental parameters for better analysis and improved comparisons

User Experience

The Agile light weight process is well received by the user community. Its facilitated methodology focuses on the users interface, interactions and needs, over process, tools and heavy documentation. Further, gathering input from users, subject matter experts and other stakeholders ensures the best possible product orientation to meet the needs of the organization. The key to these sessions is the skills and preparation of our expert Business Analysts.

Project Planning

Design, engineering, configuration /customization and deployment of the PredictEnergy™ product is highly iterative and dynamic. Project planning is performed using the Atlassian's JIRA software. JIRA is a project management tool set used for Agile style projects allowing us to track use cases, increments and issues.

Security

The system security is segmented into layers and tiers and described below:

- Meter device communication to the internet and with the virtual machine layer is via standard industry gateways, modems and commercial cell services.
- Access to the virtual machine servers and data center is via perimeter network (Firewall and DMZ) using VPN traffic routing services with two factor authentication with strong passwords enforced. DMZ contains web server and FTP services
- Security certificates are currently self signed, and can be changed to VeriSign if needed.
- Server to Server communications uses SSL and SSH protocols
- All encryption is 128 bit, and can be raised to 256 to meet DoD standards
- Application interface and development uses Java Authentication and Authorization Services (JAAS)
- User communications to the server uses Secure HTTP services (HTTPS) with SSL/TLS protocol