



Software Support For Flow Cytometry Systems

Client Overview

The client is an industry leading medical technology company that develops, manufactures and sells medical devices, instrument systems and reagents. Dedicated to improving the health of people throughout the world, this client is focused on refining drug delivery, enhancing the quality and speed of diagnosing infectious diseases and cancers, as well as advancing research, discovery and production of new drugs and vaccines. The client serves healthcare institutions, life science researchers, clinical laboratories, the pharmaceutical industry and the general public.

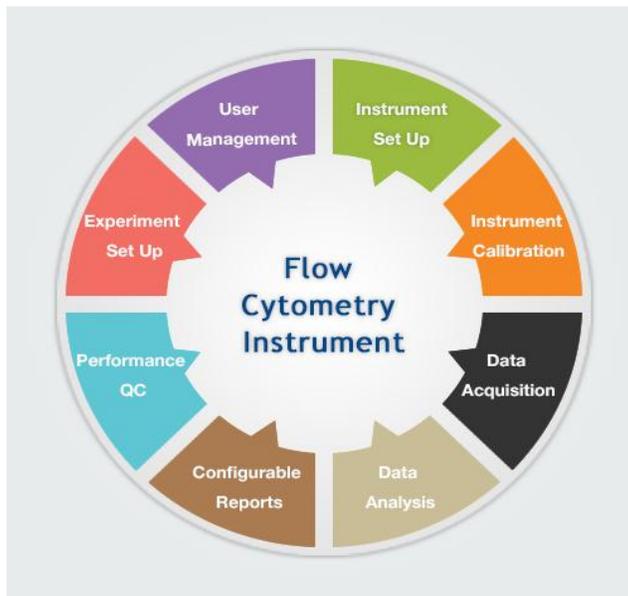
Challenges

Facing a daunting task - development of the next generation of flow cytometers in a tight, time-to-market window - the client needed to augment its internal resources with additional experts in software support and testing. Given the complexity of the project and the domain expertise it demanded, the client was challenged to find a competent software development and product engineering organization with multidisciplinary expertise in the field of Flow Cytometry. In addition to knowledge of software development techniques, the client's project required specialized knowledge in cellular biology, laser optics, and related fields. In the client's highly regulated industry, there are also many formalities to follow, not the least of which include the monitoring of every employee training in every update of the standard operating procedures (SOP), as well as documentation and change requests. Additionally, the client's teams utilized the agile method of software development, called SCRUM. Clearly, a highly skilled and specialized partner was needed to address the client's challenges.

Solutions

Optra Health, with its multidisciplinary team and vast Flow Cytometry experience - all under one roof - was found to be the perfect partner to address the client's unmet needs. Given that Optra had domain experts on their team, they were able to train the rest of the team quickly and efficiently.

Optra Health helped the client by setting up a competent team of software specialists and developers to provide support and maintenance for instrument control software running family of Flow Cytometry instruments.



The instrument control software has flexible data acquisition and analysis package specifically designed for digital-based flow cytometers. The software uses flexible features to simplify acquisition, including experiment templates, user-definable experiment layouts and automated compensation calculation. The software also provides powerful analysis features including one-click snap-to gating tools, hierarchical gating, the ability to copy and paste gates and biexponential display.

As a part of software support activities, Optra team worked on implementing multiple requirements:

- Feasibility study and requirement analysis
- Impact analysis to resolve performance degrade problems, out-of-memory problems and UI dead lock problems
- Designing and architecting various modules
- Architecture level changes and implementation for Multi-core support to make application compatible with Dual-Core machines
- Documentation - Design, Functional Specifications, UI Specifications
- Implementation/Coding & Unit Testing
- Defects fixing

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- Performance tuning
- Compatibility checking
- Installer

Optra team also supported in diverse software testing requirements which included-

- Build Acceptance and Regression testing
- Build qualification testing
- Integration testing
- Exploratory / Ad hoc testing
- Feature Complete Acceptance Testing (FCAT)
- Developing & Executing automation test scripts
- Writing VP (Verification Procedure) and executing as per the defined SOP
- Testing on Flow Cytometry Instruments
- Performance and stress testing on key features
- Regression testing for legacy features
- Verification features - Overlay, Drag & drop FCS auto incrementing, Batch Analysis
- Testing of compensation creation.
- SMART cases creation

Technologies used

- **Technologies:** Core Java; Swing, Junit, Multithreading, Sybase, Install Shield, .NET 3.5, Silk Test
- **Tools used:** TFS for code repository, JIRA as Agile Project Management Tool, Clear Case 7.0.1.1 (BD & OP), Clear Quest 7.0.1.1 (BD & OP), Cytometer Simulator v2.0

Benefits

Optra team has provided remarkable solutions to challenging requirements and critical problems. Optra team also assured quality of delivered product by thorough and systematic testing.

Below are a few highlighting benefits passed on to the Client-

- Precise gap analysis for porting application from Windows XP to Windows 7 OS
- Design level changes and implementation for Multi-core support to make application compatible with Dual-Core machines

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- Fixing legacy multi-threading related defects
- Feature development for Overlay, Drag and Drop, Terasaki Plate, auto increment FCS exporting
- Flawless test procedures development
- Streamlining testing mechanism and build qualification procedure
- Automating legacy manual test procedures
- Assisting in drafting requirements
- For old features, creating technical implementation documents and elaborative functional specification documents
- Resolving performance degrade problems, out-of-memory problems and UI dead lock problems by proper impact analysis
- Stress testing for heavy data and generating informative comparison reports and detecting defects

About Optra Health

Optra Health is an ISO-certified global organization with deep domain expertise in medical devices, lab automation, life science informatics and healthcare IT solutions. The company provides a fully-scalable, cost-effective OptiShore™ delivery model. This enables customers to choose the optimal balance between on-site, on-shore, and off-shore development that will best address their budget and collaboration requirements. With Optra Health, customers are able to shrink their time-to-market by leveraging practical, building-block based solutions. Committed to clear communication and total transparency, the company consistently meets or exceeds its clients' expectations. Offering a full complement of expert engineering and consulting services, Optra Health is aligned to real business needs applied over the entire product development lifecycle. The robust, scalable and efficient IT infrastructure of the company, together with its outstanding project management team, consistently ensures superior results. Optra Health's global delivery model helps its customers cut costs by about 50% without compromising on quality and realize a 200% improved production cycle. Visit Optra Health today: <http://www.optrahealth.com>

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