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Software-validation products: finding a glitch before it's a hitch

The idiom “time is of the essence” isn’t lost on Lisa Adams, senior information technology systems analyst at Banner Health and a believer in the need for speed when identifying software glitches and errors.

In a recent code upgrade of Banner Health’s blood bank system in a staging environment, an error in result entry was discovered while testing. Because Phoenix-based Banner uses Vedant Healthcare’s TestStream software-validation solution, which pinpointed the problem, it was able to contact its blood bank systems vendor and eradicate the error tout suite, saving time and resources. TestStream “saves tremendous amounts of time,” Adams stresses.

Henry Ford Hospital, in Detroit, too uses an automated software-validation product, one from Software Testing Solutions, to ensure that results from its lab information system display correctly in the hospital’s EMR and other systems that receive lab results. It wouldn’t be possible for the lab to manually validate the thousands of tests it performs, says J. Mark Tuthill, MD, Henry Ford’s division head of pathology informatics.

Validating software systems in a timely manner is critical to hospital operations because systems across departments are often highly interconnected, says Jennifer Lyle, CEO and founder of STS. The company, which refers to all of its software-validation products as “solutions,” validates software for Sunquest and SCC Soft Computer. It also provides solutions for testing middleware from Sysmex, Data Innovations, and Atlas. In August, STS announced a partnership with Sunquest, which allows Sunquest to resell STS solutions to its customers.

STS, Lyle notes, does not use the traditional scripted approach to automation. Scripts simply aren’t robust or maintainable enough to handle the complexity of lab software, Lyle contends. Rather, its product works by “simulating an intelligent user driving the system under test,” she explains. In other words, to run tests, STS feeds keystrokes and mouse clicks into the application as a regular user would, while continually documenting the test process.

More specifically, STS automatically extracts key client-specific information from the system to be tested, such as the test compendium, reference ranges, and user-defined rules. It stores the information behind the scenes so it can be accessed to guide the testing. After this has been done, a user can define what the lab wants to test and click “run,” at which point the solution takes over the PC and performs the requested transactions. “When the test is running, it looks like a ghost is doing the work,” Lyle notes. Once the testing is completed, the solution will send an email notification to the user stating that the test results, which include labeled screen prints of each transaction, are available for review.

STS can run testing remotely on client systems or train clients to run tests themselves, although the company often performs a combination of both, Lyle says. The vendor has 250 clients across the United States, Canada, and the United Kingdom, which run the gamut from large university health systems to small community hospitals.

Like STS’ solution, Vedant Healthcare’s TestStream product, which was invented in 1996, works by simulating a

user testing a software application and documenting errors as they occur. Upon installation, TestStream extracts information about how clients have customized a particular vendor's software in order to guide testing. "It took scripts out of play," says Vedant CEO Raymond Bell.

The artificial intelligence-based product interrogates the system to be tested en masse and then systematically analyzes the information in it. TestStream categorizes the errors it finds by the level of patient risk those errors present, so users can determine the urgency with which they should address problems. It's a "click-and-go" solution, Bell adds, that can be up and running two hours after being installed.

TestStream validates solutions from Cerner, Epic, Sunquest, SCC Soft Computer, and McKesson Enterprise Information Solutions (now Allscripts). SCC Soft Computer is also collaborating with Vedant to validate some of its products internally, Bell says.

Vedant too will test a client's software remotely or train clients to run testing themselves, depending on the client's needs. The company has about 680 customers across 4,000 facilities, adds Bell—"everything from your tiny little hospital in Danbury, Connecticut, all the way to the massive metro hospital in the middle of Sydney, Australia."

Banner Health has been a Vedant client since 1997 and, in recent years, has used TestStream to validate every major code level upgrade in its blood bank system and for regular service pack testing. Prior to purchasing TestStream, the lab employed six technical specialists to help with validation and still had to hire consultants to complete validation in the required two-month turnaround time. "That has been reduced to two technical specialists to review the validation," Adams says.

She advises laboratories to dedicate a staff member to operating the software and training other users, if necessary. She also cautions them to keep backup manual scripts in the event of issues with the lab's software or servers.

Henry Ford's pathology lab has been an STS customer for more than a decade and has used STS' solution to test many of its Sunquest LIS modules. In that time, Dr. Tuthill says, STS has caught every possible error variation in the EMR display, a process critical for CLIA certification.

It is typical to find EMR display errors in scenario testing, but STS has also discovered errors in volume testing. Without an automated testing solution, Dr. Tuthill explains, his lab wouldn't be able to perform extensive volume testing—meaning errors in more esoteric lab tests or result variations wouldn't be discovered until the lab performed the test for a patient. "Whereas, with STS, we catch these errors up front," he says. STS also automates the process of creating the documentation required for intersystem validation, Dr. Tuthill notes.

The increasing complexity of health care information systems is driving the automated software testing industry, Lyle contends. Most errors aren't due to bugs in lab software, she adds. Rather, they're the result of small human errors in system configuration that can cause a cascade effect.—*Charna Albert*

Xifin introduces NGS module

Xifin has released Xifin LIS Anywhere for NGS, a next-generation sequencing module for the company's laboratory information system.

"Xifin LIS Anywhere for NGS provides intuitive cloud-based workflow management to support the sequencing operations of genomic laboratories for commercial testing," according to a statement from the company. "The end-to-end workflow solution enables laboratories to drive growth of business lines by improving sequencing operations through efficient wet lab management, extending the AP module for TC/PC splits and facilitating cloud-based digital images as well as physician collaboration."

The NGS module offers, among other capabilities, plate management, configurable batch processing, clinical trials management, and laboratory procedure/protocol management.

In addition to being offered as part of Xifin LIS Anywhere, the NGS module can be used to augment less robust LISs or research-oriented laboratory information management systems.

[Xifin](#), 858-436-2948

Roche offers decision-support software for oncology teams

Roche recently introduced the Navify tumor board solution, cloud-based clinical workflow and decision-support software to assist with cancer patient case reviews in tumor board and multidisciplinary team meetings.

The product supports care team collaboration and streamlines and standardizes clinical workflow by aggregating patient data from multiple sources, including medical histories, pathology reports, microscope slide and radiology images, and EMR notes, in one dashboard.

The Navify solution also allows experts in other locations to participate remotely in meetings.

[Roche](#), +41 61 688 11 11

Free ebook addresses lab statistics for method evaluation

Data Innovations, marketer of EP Evaluator quality assurance software, is offering a free ebook, *Lab Statistics Fun and Easy: A Practical Approach to Method Evaluation, 5th Edition*.

The electronic book is “a practical guide for any laboratorian that wants a refresher, primer, or just a guide for statistics for method evaluation,” states a press release from the company.

The ebook can be downloaded at resources.evaluator.com.

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