

Success Story



ORGANIZATION



ec² Software Solutions

APPLICATIONS

- Nuclear Medicine
- Molecular Imaging
- Nuclear Pharmacy
- PET manufacturing

TOOLS USED

- Embarcadero RAD Studio
- C++Builder

CHALLENGES

- Rapidly deliver innovation to customers in a highly regulated, technically complex space.
- Deliver a highly reliable medical application that remains adaptable to a continuously changing regulatory environment.
- Small teams must deliver complex programs, as unique product requirements require highly specialized programmers.

RESULTS

- ec² Software Solutions established themselves as the leading supplier of software products that help medical providers navigate the vast and complex regulations governing the Nuclear Medicine industry.
- RAD Studio enables ec² to achieve extreme agility while following a waterfall requirement and development process.
- ec² is the only player able to offer cross-platform solutions—Windows, Mac and iOS—removing significant adoption barriers.

“You don’t have to worry about the front-end visual design because it’s so easy. That’s one of the reasons we went with C++Builder to begin with, that’s why we believe in the environment. We think it’s the best development environment.”

– Brett Whittacre, Senior Vice President R&D, Co-Founder, ec² Software Solutions

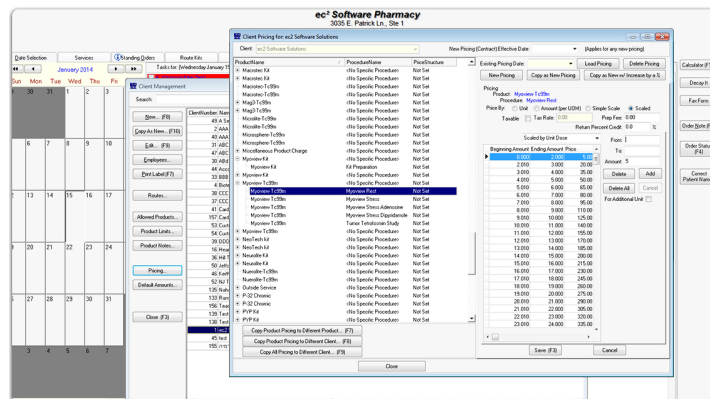
Nuclear Medicine and Molecular Imaging are among the most highly complex and regulated areas in all science. Regulated by four agencies—the Department of Transportation, the Food and Drug Administration, the Nuclear Regulatory agency and the Board of Pharmacy—developers find that creating software for this industry is a daunting task.

Despite this, ec² Software Solutions is the leading provider of the software tools that support this field of medicine. It’s complicated and high stakes work. Nuclear medicine research and clinical facilities must collect and manage patient data as well as rigorously account for and dispense prescriptions for a diverse array of radioactive isotopes. Mismanagement of any aspect of the work can result in severe legal and

CHALLENGE

ec² is driven by regulatory pressure to deliver products that meet precise technical and reliability metrics while competitive forces require them to regularly and quickly deliver updates of their flagship products, including mobile and cloud-based versions. They have a long history of success and have become the leading Nuclear Medicine software provider.

This position is attributable to ec²'s ability to rapidly innovate. In 1999, Jared Johnson and Brett Whittacre saw that the way the Nuclear Pharmacy industry operated was ripe for change—nuclear isotopes disappear in real time and need a real-time management system—everything available then had paper-based weak links. They envisioned



BioRx client pricing screen

safety consequences for patients and clinicians. “Ours is a very complex piece of software that basically runs a Nuclear Pharmacy, right down to predictions of when you need to do things. After all, our customers use radioactive isotopes that decay, so every 6 hours they lose half their product,” said Brett Whittacre, Senior Vice President R&D, Co-Founder, ec² Software Solutions. Today, over 150 pharmacies and 3000 hospitals and clinics in more than four countries trust ec²'s software to deliver reliable and state-of-the-art tools.

a simple, cost-effective and complete digital isotope tracking system. Together they joined forces with an independent nuclear pharmacy to form Biodose (later named ec² Software Solutions) to develop software solutions to improve the efficiency of nuclear medicine facilities.

To create their first product they selected Embarcadero Technologies C++Builder. “It was the best choice,” said Jared Johnson, Senior Vice President R&D, and Co-Founder. Using

C++Builder, they created their Nuclear Medicine product BioDose Isotope Tracking Software with a small team of developers. BioDose was well received and customers were hungry for more – they wanted a pharmacy management system, and ec² delivered. They developed their flagship product, BioRx, the world's first real-time nuclear pharmacy management system, a comprehensive software solution to efficiently operate nuclear pharmacies. It was groundbreaking, and took the industry to a new level. Using BioRx, medical professionals could use a touchscreen system to complete virtually all of the workflow required to dispense isotope prescriptions. The system was so revolutionary that company sales reps found that prospects could not believe that such a system could work as claimed. "We had to fly potential customers out to one of our locations to see it in action and see for themselves that it worked – it was rapidly embraced once customers started using it and the word got around!" said Johnson.

BioRx is just one of a growing suite of ec² products that now include solutions for Nuclear Pharmacy, PET (Proton Emission Tomography) and Nuclear Medicine. Each of these solutions is subject to stringent regulatory requirements that span initial development concepts to clinical use. This creates unique development constraints. "We often have to follow waterfall methodology in which all product features are specified upfront for regulatory scrutiny. Using RAD Studio allows us to build mockups to quickly to show customers what we are thinking of and what we understand as requirements," said Johnson. "With any other environment, I don't know how we could have done that."

The company thrived, developing a large installed base. However, the sea change to mobile has driven customers to expect that certain versions of ec²'s products run the same way other software programs do—on portable devices and in the cloud. "At the end of the day we needed to stay competitive and take our product to a new level. It had to work on an iPad and it had to be able to talk to some type of server in the cloud and communicate over the air," said Johnson. Requirements were strict—they needed speed, performance and control. "This was only possible if we delivered native products," added Whittacre.

"With no more than 6 developers we were able to out produce a team of 15."

– Jared Johnson, Senior Vice President R&D, and Co-Founder ec² Software Solutions



"With just a small staff of a few programmers we have been able to bring some phenomenal programs to the market."

– Brett Whittacre, Senior Vice President R&D, Co-Founder, ec² Software Solutions

SOLUTION

They chose Embarcadero C++Builder for its ease of use, power and performance and the maturity of the visual library. "You don't have to worry about the front end, that's one of the reasons we went with C++Builder to begin with, that's why we believe in the environment, we think it's the best development environment," said Whittacre.

C++Builder also requires fewer ec² resources to maintain and support. Several solutions were adapted in record time and with half the number of developers required compared to similar, previous development efforts. "With no more than 6 developers we were able to out produce a team of 15," said Johnson. "With just a small staff of a few programmers we have been able to bring some phenomenal programs to the market," Whittacre added.

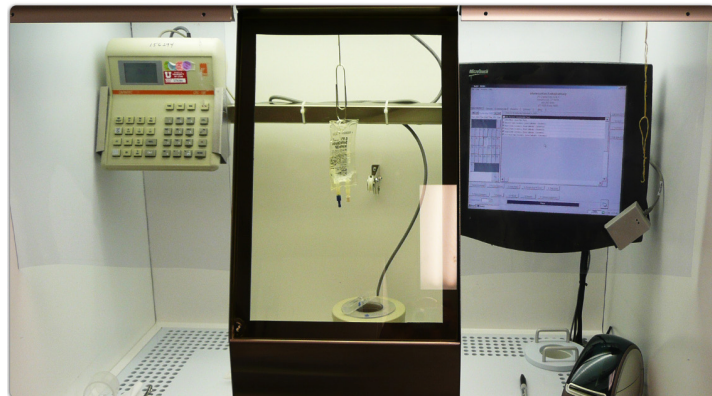
The company is also using Embarcadero RAD Studio for their move to mobile applications. "iOS, Android, Windows, Mac—the only logical response was that we wanted to be able to write once and compile for everywhere," said Whittacre.

New digital and mobile medical solutions are already in their pipeline. For example, they have undertaken an ambitious mobile mammography project called Mammos on the Move or MOM. Using RAD Studio with the FM Application Platform and DataSnap

the team has delivered the first phase of the project in only four months. "We are doing something really revolutionary inside of MOM. It's extraordinary!" said Whittacre.

RESULTS

Today, ec²'s customers are providing better patient care and research results using the most advanced software solutions developed with Embarcadero technology. Indeed, these customers can now participate in the development of the tools they use in ways that were once impractical. Using rapid prototyping techniques ec² has perfected using Embarcadero tools, they routinely create mockups for customers and prospects. This speeds up adoption and sales cycles, lowers product marketing risks and has become a real differentiator for ec². "One of the things we really like about RAD Studio is the ability to embed a component inside of any component so if we want to make a component look or function different we can do that very quickly. We finish with a happy customer and a product they want and need, and this is a key to our success," said Johnson.



Cleanroom dispensing stations for radioactive materials running BioRx software

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