

# Better care through better communications.

novaHEALTH helps improve patient care by building web-based health information solutions with Adobe ColdFusion.



*"Our biggest business challenge is to continually enhance novaHEALTH products. Adobe ColdFusion lets us rapidly add features and functionality and resolve defects without a disproportionate increase in development resources."*

*Chittesh Mehta, AVP Product Development, novaHEALTH*

## SOLUTION

Adobe ColdFusion Enterprise

## RESULTS



Helps hospitals and clinics keep communities **HEALTHY** by automating patient-based workflows



**UNITES** clinical and administrative workflows onto a **SINGLE PLATFORM**



Process-oriented modules provide **FLEXIBILITY** to customize applications



**COST-EFFECTIVELY** lets small development team quickly create, test, and update platform products



## novaHEALTH Pte Ltd

Established: 1999

Employees: 200

Singapore, Malaysia and Philippines

[www.nova-hub.com](http://www.nova-hub.com)

### CHALLENGES

- Build a web-based enterprise platform for healthcare facilities
- Supporting international clients' operational, financial, and regulatory needs
- Integrating with third-party solutions while complying with industry standards

### No compromises

Creating healthier communities at a reasonable cost is a constant challenge for hospitals and health clinics. Safe and effective care delivery requires coordination and collaboration among clinicians who diagnose and treat patients, administrators who provide processes, systems, and oversight, and teams who support key activities such as patient scheduling, medical records, and laboratory management.

Effective communications and information sharing positively influence patient care quality and efficiency. Unfortunately, many healthcare facilities still rely on siloed clinical and administrative computer systems and databases or time-consuming paper-based workflows. They also face external factors that affect decisions about quality and cost, such as regulatory requirements and pressure from payers to contain expenses.

Singapore-based novaHEALTH helps healthcare organizations become more efficient and cost-effective without compromising the quality of care. The company develops integrated, web-based health information solutions, including its flagship VESALIUS platform, using Adobe ColdFusion.

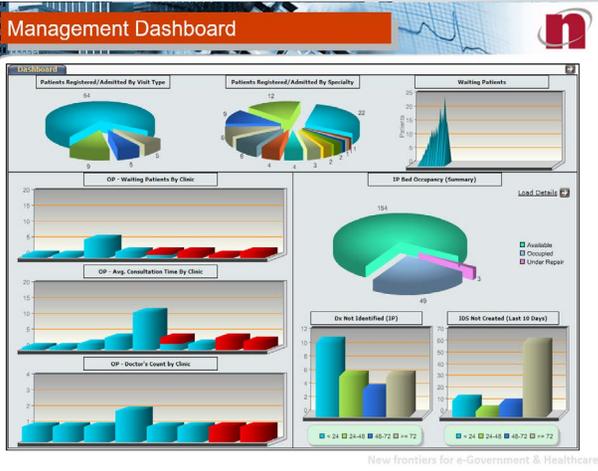
"Since we made it our rapid web application development platform, Adobe ColdFusion has kept growing with novaHEALTH's technical and functional requirements," says Chittesh Mehta, AVP Product Development, novaHEALTH. "Every subsequent ColdFusion release has provided the momentum novaHEALTH needs to keep up with web application trends."

For example, Adobe ColdFusion enabled novaHEALTH to break down information silos with hybrid solutions. novaHEALTH rapidly developed integrated on-premises and cloud-based tools for centralizing electronic medical records (EMRs) with ColdFusion. The tools enable customers to operate smoothly without having to worry about gaps in critical patient data.

### Web-based convenience

novaHEALTH implemented Adobe ColdFusion in 2002 specifically to build an integrated, web-based enterprise platform. The company's solution set has grown to three software suites that support clinical and administrative workflows for every level of provider—from hospitals and multi-site health systems to solo practitioners' offices. The web-based systems can be accessed from any device with a web browser and an internet connection.

VESALIUS-HIS is a hospital information system (HIS) designed to support every workflow triggered from the moment a patient enters a hospital to the time he or she is discharged and billed. VESALIUS-CIS is a clinical information system (CIS) that includes tools for physician support, electronic medical records, and disease management. AVICENNA is an integrated software-as-a-service (SaaS) clinic management system designed for physicians' practices and multispecialty outpatient centers.



“Since we made it our rapid web application development platform, Adobe ColdFusion has kept growing with novaHEALTH’s technical and functional requirements.”

*Chittesh Mehta, AVP Product Development, novaHEALTH*

As web-based solutions, the VESALIUS platform and AVICENNA are easy to manage and convenient to use. For instance, VESALIUS system administrators only need to manage a web application server. Meanwhile, physician users can securely check patients’ conditions from home computers or prescribe medicines from a connected tablet computer during hospital rounds.

Clients include hospitals and clinics throughout Asia-Pacific countries including Singapore, Malaysia, Indonesia, Brunei, Cambodia, Vietnam, Maldives, Hong Kong, and China. novaHEALTH solutions have helped them improve patient safety, clinical outcomes, and patient satisfaction, as well as streamline and standardize business processes, and reduce costs.

“Our biggest business challenge is to continually enhance novaHEALTH products. Adobe ColdFusion lets us rapidly add features and functionality and resolve defects without a disproportionate increase in development resources,” says Mehta.

**Simplicity, speed, and support**

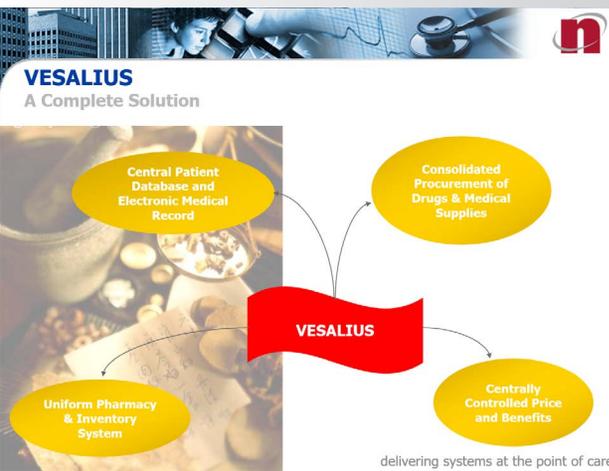
novaHEALTH originally chose Adobe ColdFusion over Java 2 Enterprise Edition (J2EE), ASP.NET, and PHP because ColdFusion was easier for developers to learn and master, offered more versatility for requirements including email, SMS, printing, and Unicode support, and enabled developers to easily monitor application performance and rapidly initiate corrective actions.

About 20 developers currently create new modules and update existing products. One of the advantages of using ColdFusion is that novaHEALTH can recruit new developers with modest web experience, such as basic HTML or JavaScript skills. Built-in productivity features and the intuitive scripting and tag-based ColdFusion Markup Language (CFML) is easy for novices to learn yet powerful enough to handle the most demanding web application logic.

“Adobe ColdFusion lets a single developer manage both graphical user interface and back-end logic,” says Mehta. “This would pose a challenge with other development platforms. Adobe ColdFusion helps novaHEALTH developers get more done in less time by letting them test and improve user experiences instead of typing in code.”

For instance, novaHEALTH only needs just a single programmer to update user interfaces (UIs) for its online transaction processing applications. Adobe ColdFusion supports flexible UI development so novaHEALTH can quickly respond to changing customer needs.

novaHEALTH developers at all skill levels access Adobe ColdFusion training and information to hone their skills and discover new ways to innovate for customers. They routinely refer to resources including the Adobe ColdFusion Developer Center and the expansive online community of ColdFusion developers.



“novaHEALTH built an enterprise scale product with minimal development staff using Adobe ColdFusion. This would have not been possible with other technology.”

*Chittesh Mehta, AVP Product Development, novaHEALTH*

## Modular flexibility

novaHEALTH designs its solutions as process-oriented modules. For example, a typical VESALIUS-HIS deployment includes a core module built around a customer’s patient database, which allows the hospital or health system using it to perform traditional HIS tasks such as registering patients and managing payments. Unlike other HISs, VESALIUS-HIS also provides a platform for adding modules such as clinical management, pharmacy management (including purchasing and stock control), and operating management.

Because workflows vary among facilities, VESALIUS modules can be customized to match each customer’s processes and they can be updated when processes change. At the same time, integration among modules helps assure that the right information is available at the point of care when it’s needed. For example, when a physician orders an X-ray, an electronic file with the order is automatically added to the radiologist’s task list for action when the patient arrives.

Application development for such a large product has been challenging at times for novaHEALTH. However, Adobe ColdFusion allows the company to maintain a centralized development environment that can be accessed by developers in multiple offices. They’ve collaborated on customizations to accommodate its international clientele’s multiple languages, laws, and currencies, including the Indonesian Rupiah and Vietnamese Dong, which don’t use decimal places.

Multiple Adobe ColdFusion features have supported rapid application development and customer deployment at novaHEALTH. Those include the ability to quickly and easily deploy ColdFusion upgrades, debug applications in both production and user acceptance testing (UAT) environments, and apply software patches.

“novaHEALTH built an enterprise scale product with minimal development staff using Adobe ColdFusion. This would have not been possible with other technology,” says Mehta. “ColdFusion lets us optimize our development approach while realizing a huge manpower savings.”

## Extending value

novaHEALTH invests heavily in research and development to continually add features that extend the value of its solutions. Some of its recent initiatives are focusing on mobile applications for iOS and Android platforms. Adobe ColdFusion provides complete workflows for developing, testing, debugging, and packaging HTML5-based mobile applications.



## SOLUTION AT A GLANCE

Adobe ColdFusion Enterprise

VESALIUS and AVICENNA also extend the value of customer's existing IT investments through interoperability. The solutions have been designed to communicate easily with third-party tools for administrative functions, including finance and payroll, and clinical functions such as medical imaging and laboratory management. VESALIUS and AVICENNA integration frameworks comply with international industry standards including Health Level Seven (HL7) and Digital Imaging and Communications in Medicine (DICOM).

"novaHEALTH recognizes that the healthcare IT environment will always be heterogeneous. Consequently, novaHEALTH used Adobe ColdFusion to develop an interoperable platform that helps unite systems," says Mehta. "Tearing down system walls allow hospitals and clinics operate smoothly without worrying about gaps in critical medical data."

For more information

[www.adobe.com/products/coldfusion-family.html](http://www.adobe.com/products/coldfusion-family.html)



Adobe  
345 Park Avenue  
San Jose, CA 95110-2704  
USA  
[www.adobe.com](http://www.adobe.com)