

The internet has opened up a great deal of new potential for the delivery of our healthcare solutions and with the help of technology developed by PDMS, have been in a position to take advantage of these new opportunities"

www.ultrasis.comGraham LewisCEO, Ultrasis Plc



Collaborating with the leading interactive healthcare provider

## Background

Ultrasis is a leader in the development of a new generation of interactive solutions, which help people manage their personal well-being. The company creates innovative clinically proven, computerized solutions that help people tackle stress and a full spectrum of chronic conditions, including coronary heart disease and depression.

Ultrasis is the only company to combine the strength of cognitive behavioral therapy (CBT), biofeedback and multimedia into self-help solutions, which help people measurably reduce the symptoms of chronic conditions such anxiety, insomnia and irritable bowel syndrome (IBS). Over half of the UK and US population suffer from stress and or stress related conditions each year. As a result Ultrasis aims to make its range of solutions available world wide directly to those in need through their PC and Internet or through their healthcare provider or employer. In the US, over 200,000 individuals already have access through their intranets at work to Ultrasis' easy to use stress and anxiety relief programmes. Ultrasis' solutions are available to US organizations through its partnership with Managed Health Network, the fourth largest provider of managed behavioral healthcare and employee assistance programmes in the US.

Ultrasis also offers a range of solutions for UK healthcare professionals, which enables them to implement the NHS' National Service Frameworks starting with coronary heart disease and mental health. Calm Heart, for example, is an interactive patient education and motivation tool that helps clinicians in the assessment and monitoring of patients for Coronary Heart disease. Calm Heart is now available at 30% of the UK's heart rehabilitation centers as well as through GP's. Another professional product, Beating the Blues uses CBT with the visual power of multi-media to reduce stress by teaching new ways of thinking and behaving. BtB is available through GP's and mental health institutions throughout the country. Also in the UK, IBS Relief is the first product to use biofeedback, sensors and multimedia to help patients gain control over their symptoms

Ultrasis solutions are based on over a decade's research and development with some of the world's leading medical professional and institutions including the Institute of Psychiatry, Kings College London. The company is listed on the London Stock Exchange and is based in the UK and US.

## Challenges

Ultrasis recognised that the development in Internet technology opened up further market opportunities for their software and they initially approached PDMS to provide strategic advice on the development of their products from PC based software programs to web-enabled applications.

After the successful completion of the consultancy work, Ultrasis appointed PDMS as a technology partner to work with them on the development of web based applications for a new project with an American Health care provider.

Ultrasis had now launched a new Net Based Products for stress, depression, anxiety and insomnia. This suite of programs has now been further enhanced, and is being marketed to Healthcare Providers and Corporations in the US and UK. The first Customer, MHN one of the largest providers of managed behavioural health care and employee assistance programs in the United States. With over 900 clients serving more than 10 million members, MHN provides Internet based services and programmes to Fortune 500 companies and government entities including the federal government.

PDMS were working with Ultrasis to deliver an on-line assessment engine that dealt with a range of stress related conditions. The engine had to accommodate four questionnaires covering a personal stress audit, anxiety, depression, insomnia and the associated reporting of the results. The assessment engine also had to provide for target setting so that once an audit is complete, the original answers can be modified to more "desirable" outcomes, thus allowing individuals to personalise their stress management targets and create achievable personal plans against which they can measure their progress.

## Solution

PDMS developed the assessment engine using their PageBuilder framework, which has been designed to provide highly flexible, scalable and inter-operable Internet based applications.

The solution is completely standalone and the Assessment Engine Interface provides the one point of connectivity with the entire system. This interface is used by the MNH's existing system to transfer User Session token information to the Assessment Engine in a format that meets their exact specifications.

The system developed by PDMS comprises of a number of distinct components that are listed below:

- The Data Layer (data access)

- The Business Objects Layer (the Assessment Engine)
- The Presentation Layer (the Website)
- State Management (user session information)

The system is based on a stateless 3-tier architecture, and can therefore be scaled in two directions. The functional layers can be distributed across servers (i.e. delivery layer on one server, business layer on another, database on another), or multiple servers (or server groups) can be configured with both delivery and business layers to provide load balancing and resiliency. For large-scale implementations, both approaches can be used concurrently.

The assessment engine has also been designed to allow for multi database platform support, supporting either Microsoft SQL Server or Oracle databases.

The following server specification was implemented as a baseline for a production environment for this architecture, given an estimated usage figure 250,000 users per week:

- Windows 2000 Advanced Server
- Dual Pentium III 800MHz processors, 256Kb L2 Cache
- 512Mb RAM (133MHz ECC)
- Mirrored 9.1Gb Disks
- Dual PSU

The implementation of the system was undertaken by PDMS personnel at the premises of MHN's ISP, which is based in the USA and was completed within a day.

Updates to the clients system are currently being undertaken remotely from the PDMS offices in Castletown

## Benefits

Ultrasis' innovative software not only helps healthcare professionals but also companies and organisations to deal with work related stress. Work related stress is currently one of the highest risk factors in work related illness and in the UK alone, accounts for 40 million lost working days each year, costing industry an estimated £7-9 billion a year. Ultrasis' online Work Related Stress Audit can help organisations identify stress hot spots, provide quantifiable risk assessments and help not only with the identification of stress but more importantly with intervention and prevention. Using Internet technology, the assessment engines improve access to care and provides new ways for employers to help and support their staff.

Working with PDMS, Ultrasis were able to move their interactive healthcare solutions to the web and develop new business relationships with companies such as MNH. The implementation and integration of Ultrasis' assessment engines into the Questium suite of products has been extremely successful and a new Ultrasis program which will provide for the assessment, education and interactive self-help activities in the area of substance abuse will be added to Questium suite in the near future.