

Pulse chooses .NET for its next generation Wealth Management Solution.

MD Mike Nicholls explains why he feels that .NET/C# is the way forward for Wealth Management Solutions.

Pulse Software Systems has chosen Microsoft .NET as its technical platform for developing Pulse Symphony, the next generation solution for the Wealth Management Industry.

Utilising the .NET framework, Pulse Symphony provides Wealth Managers with the necessary tools and services to efficiently manage all aspects of their working day. Symphony harnesses the power and flexibility of .NET to deliver a truly open and extensible Wealth Management solution that provides seamless systems integration and connects people, information, disparate systems and data sources into a uniform Desktop environment.

The Challenge

Back in 1993, Pulse showcased Pulse Portfolio, a powerful and fully integrated Investment Management System developed using VB/Oracle technologies and adhering to the, then standard, client/server architecture. Developed in conjunction with a leading stockbroker, the software was commissioned to provide a "best of breed" solution and offered enhanced levels of Front-Office functionality, as well as establishing the platform to deliver improved levels of STP across the organisation.

With the system evolving over the years into a fully integrated Front, Middle and Back-Office solution, Pulse has established itself at the vanguard of the private client investment management industry and now fulfils the needs of more than 30 leading organisations.

In 1999, following a client's request to work within the guidelines of their newly imposed zero client-deployment technical strategy, Pulse commenced a development project to build FMW (Fund Manager Workbench), a powerful browser-based application, providing sophisticated levels of functionality to Front-Office decision makers. Utilising the Pulse Portfolio Oracle Database, the system has delivered the client organisation with an extensible and component-based architecture that, following a merger, has now been successfully deployed across the enlarged user base.

Both the client/server and browser-based technologies provided a platform for enhancing the functionality that could be made available to Wealth Managers. However, they both impose constraints on what we believe can be achieved with today's computer processing power.

These restrictions have effectively been removed with the arrival of the Microsoft .NET architecture. Microsoft have taken the best of the older technologies and provided a modern framework capable of supporting software which is both functionally rich and easy to use.

Having been designing systems for well over a decade we knew that Wealth Managers were becoming increasingly sophisticated in their requirements. Today's managers

require access to information from both inside and outside of their organisation – for example from other systems, spreadsheets, research databases, live data-feeds or market commentary. Currently, external information is provided through separate systems, often on another screen. Surely this would be of more use if it was integrated with and within the context of the portfolios being managed?

This sophistication is equally true of a company's requirement to both actively manage and monitor the day-to-day running of the business, as well as to analyse historical data. There is a "wealth" of information within a company's computer systems, and if not actually hidden, it is in reality difficult to access and present meaningfully to the senior management. As Wealth Management companies are well aware, both regulatory and compliance issues are only going to become more demanding in the future.

The challenge was thus to design and build a system powerful enough to address these issues (and many others) and flexible enough to accommodate future changes in business practices. Specifically we highlighted the following basic requirements for such a system:

- Ease of use for both novice and expert users alike.
- Users only to be able to access data to which they have the requisite privileges. This has been inherently built into the Symphony Framework.
- Provision of both summary information and advanced analytical tools.
- Access data from any source, whether inside the company or externally.
- Combining disparate data and displaying it in a uniform intuitive manner.
- Providing a one-stop-shop for presenting all the information a Wealth Manager requires in a single place from KYC through Asset Analysis, Model Comparisons, Order Management, CGT, Performance and beyond.
- Analysis of data, and functionality to work at any level, from the Portfolio through Client, Family, Manager and then up through Team, Branch, Company and Firm.
- Live data positions, showing in real-time the effects of any proposed portfolio position changes. For example, as part of a modelling exercise, CGT and valuation positions updated dynamically to reflect potential impact of trades.
- Flexible component-based architecture to facilitate both the addition of new functionality and enhancements to existing functionality.
- Open architecture allowing 3rd party or in-house components to be integrated.
- Allow access not just in the office, but anywhere including Wireless.
- To process large volumes of data as functionality will scale from the Portfolio level right up to Firm.
- And last but not least, to be very fast. Use intelligent caching and highly optimised data manipulation techniques.

The Solution

A strategic decision was taken in early 2004 to target a sizeable proportion of the company's R&D budget and resources towards the establishment of a separate development team to undertake this development, codenamed PWMS, this was later renamed Pulse Symphony. As the technology issues were reviewed, the following design features were highlighted.

- As .NET is a Microsoft technology it is important to have tight integration with this Framework. In utilising C#, integration with other Microsoft products including Outlook and Office has become far easier. With Java and other development environments this would not have been the case.
- To build upon our expertise in Oracle Databases. Even though Symphony will access data from disparate sources, there is still the need to store and manage potentially large volumes of data within Symphony itself.
- To build a highly secure framework within which we could deploy custom components that would each, or as a group, deal with specific functional areas such as KYC, Valuation, Modelling, CGT, Performance, Decision Support, Order Management, Outlook integration and Business Intelligence etc.
- This framework would be responsible for providing a transparent, fast and generic connection to not only the Pulse Portfolio Oracle database, but to any other Back-Office data source.
- The framework would facilitate a sophisticated

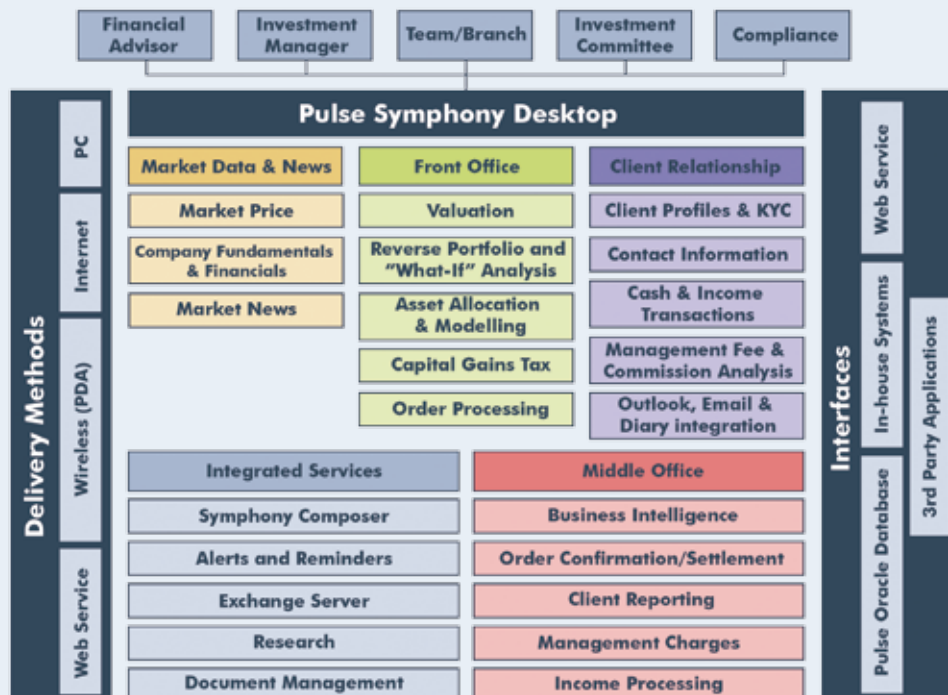
messaging structure between the deployed functional components allowing each control to register an interest in any of the other controls anywhere in the system, and act on any changes within the state of that component to deliver real-time messaging and simulation.

- Work from anywhere approach. Development of IDBO's (Intelligent Distributed Business Objects) which automatically choose the most efficient route of determining and collecting data, based upon inherent factors. This allows Symphony to be deployed within environments where, traditionally, bandwidth could be an issue; for example a PDA device.
- Symphony is designed to be fully open as well as readily extendable. A standard base control object allows new components to be derived that will seamlessly participate within and be hosted by the standard design Framework. In addition a base class IDBO exists that allows data to be retrieved from any data source. This approach is critical in allowing Symphony to become a truly unifying solution since it enables components to be written by the Client as well as specialist 3rd-party participants.

Symphony is also fully multi-threaded, allowing individual components to instruct their Business Objects to collect and process their data on individual worker-threads, thus remaining responsive at all times and providing real-time user interaction.

The Symphony Framework allows for internal business objects to be used directly by a client using .NET's Remoting architecture. In addition it also exposes a sub-set of these same classes via secure Web-services. These Web-services can be invoked should no direct link exist between the Client

The Symphony Design Architecture



The Benefits

By embracing Microsoft .NET and C#, Pulse has been able to build the next generation of Wealth Management solutions in a relatively short timeframe.

Combining .NET with the full power of modern computers has significantly raised the bar in what can be achieved with benefits for not only Wealth Managers but their Companies as well.

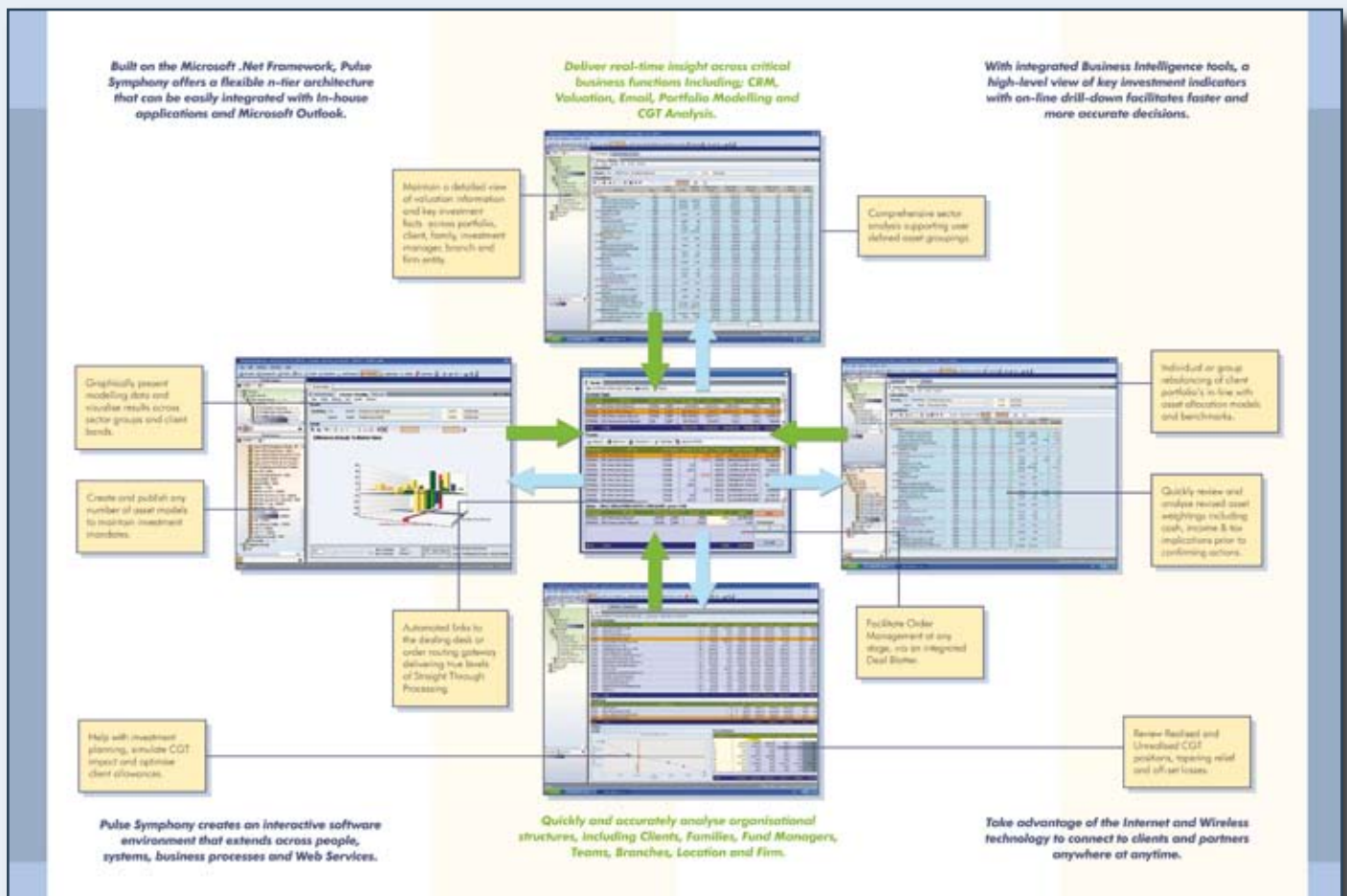
By utilising a truly modular based architecture, users of Symphony can potentially be presented with individually configured screens and components. Therefore only the features and functionality actually required for a given user are enabled.

With the introduction of Symphony new functionality can now be created in isolation through the use of software components e.g. CGT Modelling & Analysis or POPS (Pulse Order Processing System). When a new component is delivered to a pre-specified location, it is automatically recognised by the Symphony Framework and made available

to the user. These components can be built by Pulse, the Client or specialised 3rd party software providers.

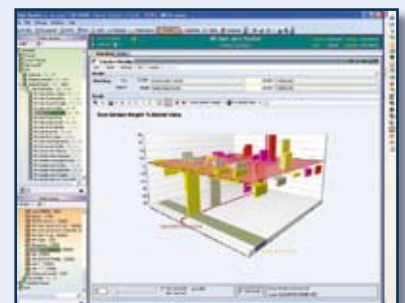
Symphony also supports the context sensitive integration of data derived from web services, such as prices, fundamentals, news, consensus forecasts and broker research. This unique approach puts all relevant information in front of the Wealth Manager within a single solution, be they in the office or visiting clients.

With the planned roll-out of a WiFi network across London and other cities within the next few months, Wealth Managers will be able access data and stay connected at all times. Symphony provides the framework to present and work with this information anywhere and at anytime.



Helping you make informed investment decisions

- Know Your Client / CRM
- Flexible Valuation & Asset Allocation Groupings
- Sophisticated Modelling & Portfolio Rebalancing
- Performance Measurement
- "What-if?" CGT Incorporating Optimisation Tools
- Real-time integration with external Market Data & Web Services
- Email & Diarised Appointments using Microsoft Outlook
- Order Management & Pre-Trade Compliance
- Corporate Action, Income & Management Fee Processing
- Integrated Nominee & Custody Positions
- Powerful Data Mining & Business Intelligence Tools
- Comprehensive Accounting & Settlement Processing
- Client, Management & Compliance Reporting
- Designed using the latest Microsoft C# .NET Technologies



Front Office

Sophisticated front office tools enable Investment Managers' to quickly retrieve and analyse information from across the entire organisational structure. Everyday tasks including CRM, Valuation, Modelling, Performance, CGT & Order Management are delivered within a powerful interactive environment.



Middle Office

Offered as a series of interconnected software components, Pulse delivers advanced business critical functionality providing a compelling opportunity to transform all areas of the Investment Management operation.



Back Office

Incorporating a powerful and flexible settlement, accounting and nominee solution, Pulse enables STP by streamlining operational processes into a series of fully automated tasks.