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Axcess Canada Inc.

Axcess Business
Development Team

[ARMNET'S FLEXIBLE DESIGN PHILOSOPHY]

Defining the unique structure of ARMnet Integrated Financial Product Management Solutions in assisting Financial Institutions to more effectively manage their products and services.

ARMNET: A DESIGN PHILOSOPHY

EXECUTIVE OVERVIEW

"**Make Software the Slave to Your Business never the Master.**"

It is incumbent on those in senior management positions to understand the effect information technology decisions have on a company's ability to compete in today's markets. A deeper understanding of today's technology offerings engenders a better insight into the benefits the technology can offer. Not understanding the technologies of the day increases the possibility of an ill informed purchase decision providing an IT platform that could constrain business growth and hamper long term strategic goals.

Any business regardless of the sector it operates in should not be held at ransom by essentially being married to arcane computer systems that cannot meet the demands of today's competitive markets. The cornerstone of any Business Strategy should be the creation of a robust information technology environment capable of responding to new business initiatives rapidly and effectively and servicing existing clients in a responsive manner that is timely and proactive in nature. When the Board of Directors in any financial institution decides on new marketing or product initiative most IT departments recoil at the thought of having to integrate new expectations into existing functionality. Consequently time frames for such developments are usually exaggerated. This begs the obvious question, why? At Axcess Canada we would suggest that maybe the IT infrastructure in use, is not geared for rapid project development life cycles, or if it is, it comes at a cost, not in proportion with the benefits expected. This is a result of the typical development cycle of most applications. The result of this "*stigma*" is a general expectation of poor response time and slow implementation. Delivery of new products and services to a changing market should be quick, hassle free and without undue cost fluctuations. The IT infrastructure should be this capable. Easier said than done you might say! The application software system you implement underpins the business strategy you are trying to implement. In today's economy your software needs to react like you have to in the current environment or it is ineffective.

At Axcess Canada, together with our global partners at Axcess Consulting Pty Ltd and Axcess Americas we design software that is totally customizable to the institutions needs. Users are able to design their own "User interfaces" and "Data Workflows". Essentially we designed a system that is easily supportable by a Business Analyst (BA), not a code programmer. A skilled BA will analyse the operation and system data of a business to develop a business solution rather than a solution based on technology alone. A person or persons with this skill set can easily customize ARMnet for a maximum return, not only on the financial level but also at the business operations level as well. This also minimizes change management issue on product implementations in a manner previously thought impossible.

Our clients often ask how they can better use their existing IT systems to create higher value revenue streams, reduce their operating costs and improve their "Time to Approval" customer responses. Implementing a Lending System albeit a loan origination, a loan management or a loan servicing solution can be extremely expensive, time consuming, resource intensive and security flawed. Of no interest to customers is the computationally intensive nature of the processing that is needed to provide them with the services they take for granted like real time Web Portal Interfacing, Direct Debit and Credit Transfers, and electronic client contact. All are accepted as the norm by clients or members in today's financial marketplace. Quite frankly I.T. related issues to achieve that are "*not their problem*".

By comparison, when the ARMnet Integrated Financial Product Management Solution is installed on a properly configured PC based platform it is capable of processing enormous amounts of data. In the last few years' transaction processing volumes at many financial institutions have increased significantly due to Internet educated customers expecting real time Web oriented responsiveness. This includes personal information being protected under regulatory privacy laws and yet accessible from anywhere. This has escalated the response needs of institutions on many levels. To achieve acceptable processing speeds for excessively large volumes of transactions we created a Service Oriented Architecture (SOA) using the concept of a "**Service Grid Processor**". By assigning pieces or sections of

the processing workload to individual "services" within a single computer or (to many such services in a Network or over the Web), the ARMnet software splits the workload and processes transactions concurrently, thereby enabling millions of transactions to be processed at the same time. Volumes that previously could only be handled by large centralised processors in a very linear structure are now effectively managed by more scalable hardware structures. The capital and ongoing costs of a software implementation on a PC platform is far less than the costs incurred using conventional alternatives.

The ability of a Grid Processing System to expand easily to accommodate heavy (or lighter) workloads within a distributed processing environment makes systems developed on this platform easily scalable and therefore more likely to protect the investment in time and money expended in them. Today, software systems must be able to create new functionality or enhance existing functions in timeframes that were unheard of years ago. Business requirements change daily. Implementing systems capable of delivering the expectations of computer savvy customers as well as the technical complexities of networks that need to process input from a myriad of sources - including the Web and Internet interfacing, Bank File transfers, mobile banking and normal back office input tasks, is a daunting task for Management and IT departments alike.

Summary of ARMnet Features

- Developed on Microsoft's .NET Framework. Makes for easy integration with other software.

- Compliant with current **SOA** standards.

- Member of LIXI and MISMO

- A Client Relationship Management foundation ensures a customer centric application. A single point of origin for accessing client information.

- A text /graphical reporting function that lets you "Data Mine" your information.

- Based on Smart Client architecture for better delivery of web based services to customers.

- Fully scalable system using the latest Microsoft SQL database architecture

This White Paper will explain the latest terminology benefits and then step you through the design criteria and operation of the ARMnet system from a non technical user's perspective.

WHAT IS SOA?

Service Oriented Architecture is a philosophical strategy or concept. It is the computer industry's way of presenting to the business world a method of achieving seamless integration of interconnected and sometimes incompatible information systems. To achieve an acceptable Return on Investment (ROI) particularly from large scale IT implementations, a strategy was needed to show how to integrate the diversity of computer systems and applications that have evolved over the years. With this in mind SOA was born.

The business value of the Service Oriented Architecture is to:

1. Reduce Capital Expenditure and Operating Costs within the IT environment.
2. To improve the responsiveness to marketplace changes.
3. To enhance Customer Service through Client Profiling.
4. To address any Legal Regulatory compliances.

What is needed to implement a system based on SOA concepts? In the past Information Technology has not delivered systems that always met the business view held by management. This has not always been the fault of those delivering the IT infrastructure. SOA recommends joint responsibility in evaluating new systems. The reasoning behind the introduction of the Service Oriented Architecture is to ensure the strategic business goals properly represent the business management view and not just what technologists think the business view should be. At the heart of SOA planning is the process of defining the structure in which information processing can support business initiatives and the plan for implementing them. This results in us being able to let IT become an advisory partner in this process.

Under the rules of an SOA compliant system a software system must add "value" to the business in such a way as to be a demonstrable and auditable. The flexibility of ARMnet's workflow automation features provide a Business Analyst with a toolset that lets them further develop the business application without delving into the ARMnet software and having to change actual code. No programmer needed. The cost savings that can be generated by utilising the ability to design the format of a screen and then link your own procedural workflow to that screen cannot be overstated.

When a Service Oriented Architecture is looked at in relation to the ARMnet design it can be seen that Axcess Canada together with our global partners at Axcess Consulting Pty Ltd and Axcess Americas are at the forefront of customer centric software development. The ARMnet system has been developed in the form of modular building blocks that interconnect. In this way information from different business applications becomes assessable to all business units. For example loan information previously stored in the administration system now becomes available to users needing a collection module or a Web based Brokers subsystem. It is no longer difficult to isolate and update key parts of an application system.

WHAT IS A SMART CLIENT?

The phrase "developed as a Smart Client application" can best be understood by explaining the basis upon which the term "Smart Client" is used. This term is attributed to applications that meet criteria created by the IT community to enable users to distinguish between older legacy applications and those developed utilising newer technologies and design methodologies.

ARMnet is a Smart Client application. The underlying design criteria ensures it can be viewed as being "smart" when an application accesses and processes data from a myriad of external sources before being displayed to the home base that requested it. Information which resides in standalone databases and is not accessible in a controlled real time interactive mode is now considered as a legacy system.

The smart client application is always part of a much larger distributed network which interacts with its individual parts through a series of Web based services that connect individual computer systems for the purposes of using each system's residing local data and applications. For instance a financial institution is able to run in a "store and forward" mode due to the offline processing capabilities of an application designed to cache data and manage connections in an intelligent way.

Other benefits that "Smart Client" developments offer businesses are more "administrative". The deployment and update of systems and information is easier, more secure and less time consuming than when legacy systems were deployed. The use of new development tools such as Microsoft's .Net Framework and ASP.Net are web based tools that use the internet connectivity to its maximum and in doing so offer real time solutions and connectivity in an unparalleled manner.

WHAT IS SERVICE GRID PROCESSING?

ARMnet is a software application built on the "Grid Processing" concept defined in the SOA model. Service Grid Processing is the ability to process many transactions "concurrently" either in the same computer or over a cluster of networked systems. Grid computing depends on the ARMnet software dividing and apportioning pieces of the program to as many computers and services as needed to complete a processing operation within an acceptable time frame. Running an application that completes outside a known and acceptable "Time Window" determines the number of "processing services" needed to be activated. **End of Day (EOD)** is one such module.

ARMnet is a date, task and transaction driven system. This was a deliberate design choice. The decision to use this method was decided on long before SOA and Business-Agile Enterprise (B-AE) and associated concepts became "fashionable". To automate any type of manual process requires a complexity in design conversely proportional to that process's ease of use. When one takes the time to consider the complexity in design of ARMnet's software solutions and the resulting ease with which Business Analysts and users alike can personalize functions through a

date driven automated pending change sub system, its' ease of use becomes easily quantifiable.

In the ARMnet system the key processing module this doctrine applies to is the End of Day (EOD) function.

The Service Grid Processing feature is the key to mass transaction throughput. The EOD module invokes the Grid Processor Service which then queues all the tasks and transactions. To reduce the total time taken to process, multi services can be invoked on separate servers and over separate processors. For example a cluster of servers can be configured with each server running One Task Processor and One Transaction Processor. (The Task and Transaction function can be further split into two processors for usability reasons.) When in full processing mode the Grid Processor load balances the EOD process across all servers. Concurrent processing reduces update times significantly when much larger volumes are involved. By adding more services and servers to the grid ARMnet is deemed to be a fully **scalable** system. The grid can constitute a combination of local or web connected networks.
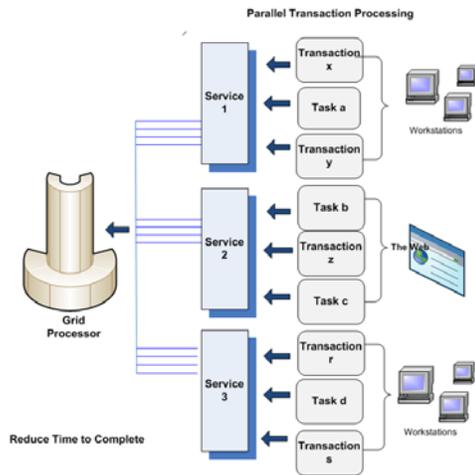
Consider this example. Your database holds 50,000 client records and 30,000 loans, 10,000 of which are active at any one time. To administer these loans, any or all, of a myriad of tasks and transactions will need to be processed on a daily basis. The volume of transactions and tasks varies from business to business. If we assume a 50,000 transaction/task processing volume and assume it takes 3 hours on a single server to perform EOD there may not be any concerns. However If the volume was 5 times that (250,000) and it took 15 hours to process any

institution would obviously have cause for concern. To optimize this you need to be able to spread the load. Service Grid Processing is the solution to that dilemma.

WHAT IS A SCALABLE SYSTEM?

The term is generally used to describe the ability of a hardware or software system(s) to continue to function at its current level or better, when changes are made to enable the system to meet new requirements of a user. Typically rescaling is normally an upward movement in system requirements caused by either increases in volumes (such as transactions) or new business systems (such as web interfacing or the use of mobile phone technology). A system that has the ability to accept new applications, to process a greatly increased volume of transactions (database) and continues to operate when changing operational platforms (i.e.: a new Windows operating system.), is said to be Scalable. In this regard ARMnet is completely "Scalable".

DEFINING ARMNET BENEFITS

ARMnet gives the user the ability to build an information processing infrastructure that allows a financial institution to effectively respond very quickly to new and emerging opportunities or challenges.

With all the good intentions under the sun, creating an SOA compliant infrastructure that ticks all the boxes for the inclusion of Internet, Web and Smart Client services and even incorporates the concept of Service Grid Processing is effectively worth nothing if the application software at the heart of your system is not designed from the ground floor up with these objectives in mind. ARMnet is completely focussed on delivering these services in a totally client centric environment.

THE BEST DEVELOPMENT PLATFORM

ARMnet uses the Microsoft VB.NET Framework as its development tool. .NET ("*Dot Net*") as it is known is system that is Web Server centric and can best be explained as a platform upon which Web based service applications can be best developed.

Microsoft® .NET consists of:

- A core component usually referred to as a "*.NET Framework*"

- Development Tools such as Microsoft® Visual Studio

- A Set of Servers such as Microsoft® SQL Server for database development

- A Client Workstation Operating System, an example is Windows XP, Vista or 7.

Using this platform ARMnet has been developed as a single system with one database and a series of interconnecting workflows and features that manage financial products over the full life cycle of a product.
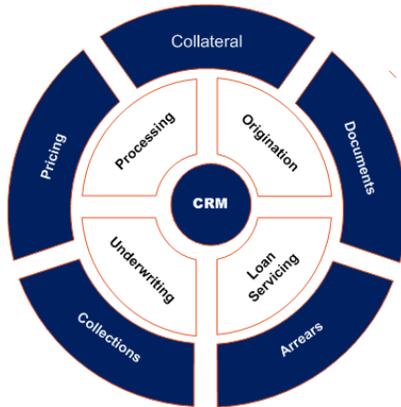
END USER INDEPENDENCE

The structural design of the ARMnet software allows the end user a significant amount of independence when compared to the accepted boundaries of the Client/User relationship. This is achieved by the provision of development tools that can be used by any competent Business Analyst (BA) to **customize the software.** With these tools of trade, a BA and /or a programmer, can view, change, and build business rules from within ARMnet. To achieve this a working knowledge of the Structured Query Language (SQL) is required. The database is an "open" entity and available for interrogation through either Microsoft SQL Server™ tools or other third party reporting tools such as Crystal Reports™. Input and Enquiry screens can be changed and workflow added without any programming intervention from our Axcess team. For example when a customer requires an advance on an existing loan we call it a "further advance". The

business rules behind the further advance procedure change for each client we speak to. Do you create a "Further Advance" screen with associated workflow or simply add icons and workflow to the existing settlement screen. Maybe the current Settlement Screen enforces a loan advance and approval process prior to the settlement that is not required in the "further advance" situation. A streamlined further advance process without an enforced Approval process included might be advantageous in circumstances for amounts less than the normal approval limits. The creation of the new screen with its associated workflow is not a programmer role. A competent BA can create the further advance automated process starting from the screen size, the look, the format and the iconography selections. They can use existing workflow to design this or create new ones. Should a new database field be needed it can be created and used by all workflow, Reports, Letters and other documentation. Clients can do this completely independent of the Axcess team. ARMnet places much more control in the hands of the user organisation than any other software vendor has ever contemplated.

CUSTOMIZATION BY YOU

Who knows your institution's business the best? Obviously one would assume your team do! ARMnet Integrated Financial Product Management Solutions allows you to customize the software to your institution's own needs now and also adapt to new requirements in the future. As a result you can effectively have complete programming **independence**.

This is achieved by having a "core" system component that holds all the program code. This includes the dynamic link libraries and all the other necessary files needed to design a financial application. Surrounding the core are templates that enable the creation of the forms and workflow. The core of the system will contain all of the functions, calculations and tools necessary to develop a wide range of financial products, whilst the templates will contain the code that enables a BA to design actual screens and data field requirements based around business processes. The core contains the actual code which is accessed by the design process. The

resultant user screen format and workflow is stored in the database not in the core.

The major advantage is that Axcess can regularly update the core without impeding or impacting on the *Business I.P.* of the client. This means that the *Client I.P.* is completely protected as it resides within the database. Product templates for Loans, Mortgages, Term Deposits and Investments have already been created. Additional templates for any other business types such as Superannuation or any other system can be easily developed by the user or by Axcess Canada and/or a member of its global partners Business Analyst team. As a client of Axcess the choice is always yours to make.

AUTOMATION OF MANUAL PROCESSES

Automating the multitude of manual steps which exist within the procedures and workflow of all businesses is *ARMnet's* claim to fame. Of all the features which exist within Axcess Arm the "wealth in gains" emanating from the "End of Day" processing function best displays the automation benefits.

The EOD function processes financial transactions and user/system created "tasks". A task is a function that tells the system to process a set of user given (and sometimes system given) instructions that occur on a given date or within a given timeframe. Transactional tasks that already exist but are changeable include the calculation of interest on accounts, the creation of the interest due transaction, the capitalization of the balance and interest amounts on the contracted date, the processing of the repayment instalments via various payment methods. Users can also create tasks that calculate and add fees to accounts on a selected dates or periods.

An automated task driven system is not complete without a document storage and retrieval function. The automatic creation of letters, documents and general correspondence for Insurance Policy Expirations, Letter of Offer, Final Contracts, Interest Rate Change Notifications and Client Statements and a whole myriad of other client documentation is all possible from the combination of a user created task system combined with the system generated financial transactions system.

For further information or a demonstration please contact us.
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