

# Tales of the Unconnected

**Let's start at the beginning. Can you give us the background on Sayula and describe what AddFive is all about.**

**Cristian Alzati:** It all started in Tokyo. The original vision really started from my own work experience as the IT support manager of Lehman's FX and Fixed Income desks. What happened was that we had to support dozens of Excel add-ins that were in active use by traders, sales people, and their quant analysts. The main problem was that although the same add-ins were used globally, for practical reasons they were supported regionally. Thus you can imagine the kind of problems we were running into on almost a daily basis. Spreadsheets using both global and regional add-ins will be consistently inconsistent. So it was routine on a Monday morning to get completely meaningless numbers only because somebody in London had done a global add-in release over the weekend. It was a real nightmare. I then started to think there's got to be a better way of doing this. And that is how Sayula and the AddFive concept were born. The idea we came up with was indeed a straightforward one. It's simply deploying the analytics on the server side, while at the same time providing Excel with a generic mechanism to access the server-deployed functionality in a completely transparent way. No matter what you put on the server, be it data, analytics, or even real-time market quotes, you will be able to access it in Excel same as a web browser can render any content type, only better because it's in real time. So what AddFive has managed to do is

Sayula Financial Technology's founder and CTO, Cristian Alzati, tells us how Sayula's AddFive is bringing together Real-Time Analytics, Excel, the Web, and the ESB by deploying all logic and data where they belong: on your Linux and Windows servers.

## Dan Tudball reports

to convert Excel into a thin real-time client and we believe this is a great achievement. A true paradigm shift, we like to say. Not only have we been able to solve the spreadsheet inconsistency problem in a single stroke, we have also completely opened up the Linux, Solaris, and Windows servers world of data and real-time analytics to all the until-now miserable Excel users of this world!

**Very simple and decisive shift but you know, obviously of great use and impact. What was the period of time over which this been developed and what kind of client response have you received in the process?**

It all happened over approximately one and a half years, from concept to a working prototype. Last year when we first presented the prototype to UBS they became immediately interested. For them AddFive was especially attractive because of the number of homegrown and third party analytic libraries they use. Since the libraries have been developed in different programming languages and

by different teams or companies, they all have different interfacing mechanisms. They wanted to have a standard mechanism whereby they could make all these libraries' functionality available in Excel. So it was quite an amazing thing for them (and for us too!) when we first came to UBS and were presented with one of their libraries in the shape of a dll and its header file. Could we make that available in Excel right there? We could not really look inside the

library since it is obviously highly proprietary information. But there was no need for that because by simply adding the library function's signature information from the header file in AddFive, and copying the dll into a specific directory, all the functions became immediately available to all the Excel users on their network. It was done in minutes, literally.

**So, it was an immediate uptake at that point there, I would imagine?**

Absolutely. Just think about it. We can almost instantly connect all your existing analytics to Excel, even the legacy ones for which the source code is not available any more. With AddFive there is no need to write a single line of code, let alone to recompile anything. There's not even a need to restart Excel! And since it is server based, everybody gets to use the same version of the code. It's the kind of functionality the front office wishes for and the middle



**Cristian Alzati**

office dreams about. Now, wouldn't it be nice if both of them can be guaranteed to always use the same logic to calculate sensitivities, mark positions to market and recalibrate models?

**Right. And I think you've made a point here, because it sounds like a very effective way to keep both, users and compliance, happy.**

Yes. This of course has to do with not only data consistency, but equally importantly with procedural and algorithmic consistency. With AddFive you know the numbers you are seeing in the spreadsheet are the actual numbers your audited analytics are calculating and not the result of an old version of the library, hidden somewhere in the dark corners of your Windows box. That will definitely make your compliance department happy.

**Of course. And what about extending that happiness beyond the world of Excel? What about the Web?**

Well, the fact that we have managed to shift Excel's analytics execution to the server affords us tremendous power and flexibility because the benefits can now be easily extended to the full enterprise via the corporate web and the enterprise's real-time bus, the ESB in Gardner's terminology. So what we have done is to go one step further in the abstraction chain to implement a framework to deploy full-fledged analytical models on the server side. The mechanism could not be simpler: create the model in Excel, upload the Excel file in AddFive and that's it. The model

Money Market Currency Pair 1-Year Curve Interpolation Context Control										
	CCY1	CCY2	Bid	Ask	MM Trade	FX Spot				
3										
4	GBP	CAD	+2.2475	+2.2479	FX Trade					
5	Basis	360	365		FX Spot					
6	GBP				MM GBP CURVE 1Y	Output				
7	Tenor	Date	Bid	Ask	Interpolated Curve	Bid	Ask			
8	3M	11-Dec-2006	+5.09	+5.11	11-Dec-2006	0.0000000	0.0000000			
9	3M	18-Dec-2006	+5.02	+5.12	18-Dec-2006	0.0000000	0.0000000			
10	3M	04-Jan-2007	+5.12	+5.19	04-Jan-2007	0.0000000	0.0000000			
11	3M	05-Feb-2007	+5.14	+5.23	05-Feb-2007	0.0000000	0.0000000			
12	3M	05-Mar-2007	+5.17	+5.24	05-Mar-2007	0.0000000	0.0000000			
13	3M	04-Jun-2007	+5.25	+5.34	04-Jun-2007	0.0000000	0.0000000			
14	3M	04-Sep-2007	+5.20	+5.30	04-Sep-2007	0.0000000	0.0000000			
15	3M	04-Dec-2007	+5.20	+5.42	04-Dec-2007	0.0000000	0.0000000			
16	Date Set Status	REALTIME_CONTEXT			Date Set Status	REALTIME_CONTEXT				
17										
18										
19										
20										
21	Tenor	Date	Bid	Ask	MM CAD CURVE 1Y	Output				
22	3M	11-Dec-2006	+4.10	+4.24	11-Dec-2006	0.0000000	0.0000000			
23	3M	18-Dec-2006	+4.10	+4.24	18-Dec-2006	0.0000000	0.0000000			
24	3M	04-Jan-2007	+4.20	+4.27	04-Jan-2007	0.0000000	0.0000000			
25	3M	05-Feb-2007	+4.30	+4.37	05-Feb-2007	0.0000000	0.0000000			

is now available on the Web via our Excel-like Flash client. You want your model to publish data into your ESB? Just define a real-time AddFive context and you're done. From your standard web browser you can now enter and change the model's data and formulas just like in Excel. And just like in Excel the formulas can be either standard spreadsheet functions or your own proprietary functions. The AddFive server keeps track of cell and formula dependencies for you and gives you access to market data right there on your browser, ticking away in real time!

**Very impressive indeed. Now, with regards to your vision, in terms of quantitative finance, what are the benefits you've found and what has the client experience been like?**

The vision is to make available all this power to the quantitative finance community at all levels; high management, front office, product controllers, finance departments, etc. And we of course see the Web as the perfect vehicle for fulfilling that vision. Sayula's main marketing message "Your analytics anywhere, anytime" conveys this philosophy well. Wouldn't it be nice if you could make available to

everybody authorized in the global enterprise your own market data and analytics results, no matter where they are? If your quants have already done the hard work of coming up with analytic models that can determine your enterprise's global trading strategy, you want to make that work visible globally and immediately without having to worry about the ugly IT stuff. These are the kind of benefits that we are seeing hitting home again and again with our potential and current client base, and so far the response has been tremendous.

**Great news there. Now, you have mentioned a comment from Reuters. They see AddFive as a threat to their product line and strategy?**

Yes, that's quite interesting. You know, those were the exact words I received in an email from them, together with a kind invitation to attend one of their developer's conferences. What happened was that we presented AddFive to Reuters in Zurich at a pretty high level. They were very impressed with the functionality and the degree to which it can be extended. And in a way some of AddFive's capabilities overlap with some of the functionality they provide on the desktop, especially for accessing real-time market data in Excel. One of the constant themes of our experience with potential clients is precisely their great desire to improve on the cost/benefits aspects of that functionality; thus the interest from Reuters, I guess. It is clear they have now realized the potential. So now the challenge for us is to leverage that interest and make it work

for our business collaboration strategy. We of course don't want to be a threat to Reuters; we'd much rather be partners with them.

**At this point in the existence of Sayula, you're looking at developing partnerships and so on. And we'll return to Reuters and Bloomberg, you've got those lined up as potential partners. Maybe you would like to talk a little bit about the partnership with Wilmott the company and Paul himself?**

Yes, absolutely. We're very excited with Wilmott and Paul joining forces with us. First of all Paul has been a great inspiration and example for me personally, from my CMU days when I first learnt about him as the co-author of one of the few good textbooks we used. Then about a year ago when I approached him to explain and show what Sayula and AddFive were all about, he became positively interested, and we of course were positively thrilled. We are now working together on our first joint project that should go live by the time this article is published. We are calling it Wilmott's "Live Models". It is quite an exciting project I must say. We want to make available in wilmott.com a simple web-based mechanism whereby members of the Wilmott community can contribute and share their own pricing models and analytic libraries. Contributed models will then become available for immediate interactive use on Sayula's Excel-like Flash client. Model parameters and formulas can be changed directly by users of the model, and if we can reach a data distribution agreement with Reuters, real-time market rates should also be seen ticking and



## TECHNOLOGY

feeding the online models. At first we will do a controlled deployment, with some of Paul's volatility forecasting models as pilot examples. But the real target is to allow wilmott.com members to be able to deploy the models on their own. We think such service will be of great use for the quantitative finance community, and so are very much looking forward to seeing it live soon!

**As you say here, this is just the tip of the iceberg with so many different potential applications. Here you have the potential, over a public space on the web, for accurate and fast collaboration on models and so on. And then you also have the industrial use there. I was wondering whether you had any sort of indication as to what's the bottom line on both time and actual money savings to**

### Consistent Real-Time Analytics, Anytime and Anywhere

Sayula's AddFive distributed application architecture provides for the simplest deployment of analytic libraries on the Linux, Solaris, and Windows server side —just copy the libraries to a server directory, define the function signatures on AddFive's system administrator's GUI and you're done. On the front end side, one of the key components of this architecture is AddFive fully dynamic integration to Excel and the Internet. As a result of this integration, proprietary and third-party server-deployed analytics become instantly available as standard functions in Excel and in an Excel-like graphical user interface on the Web. These features, coupled with a comprehensive set of built-in mechanisms to bring real-time market data into both Excel and the Web, make AddFive a powerful system whereby generic real-time analytic models can be made immediately available to local or

**this. I'm talking about the risk, the spreadsheet risk which exists in institutions. What do you think that cost is? What does that cost look like and what's its impact at the moment?**

I cannot even start to give you a ballpark figure, but if it could be quantified it will clearly amount to millions if not billions of dollars. Things have changed substantially from the times when Nick Leeson could bet the whole of Barings capital resources based on a single spreadsheet. But even so, to this day we are still seeing an ever-increasing number of mission-critical spreadsheets producing numbers on which vital investment decisions are made. And there is not indication that this will change even in the long term. Excel is the most ubiquitous software application ever to see the light in a financial institution, and this is a fact we

remote users alike. And since the perennial problem of client-deployed add-in version incompatibility is completely eliminated, consistency of analytic results is no longer an issue. In Excel, the generic AddFive add-in effectively transforms Excel into a thin client application, transparently offloading analytics execution to the server, without even the need to modify existing spreadsheets. On the Web, the Excel-like interface understands the format of native Excel XML spreadsheet files, which means that any existing Excel models can be readily activated as real-time, fully interactive spreadsheets on a standard web browser. This is the functionality that Sayula and Wilmott are bringing together as a service to the quantitative finance community in the shape of the upcoming LiveModels feature in Wilmott's web site, as mentioned in the accompanying interview.

should all try to happily live with. Firms are very aware of this and thus have been proactively taking measures to lessen the risks. One of the first steps taken on this regard has been to move most of their existing applications to the corporate web, a very effective measure of course. But Excel is different and although not impossible, with spreadsheet-based applications this has not been simple to achieve; unless you use AddFive that is. Because here is exactly where AddFive colors truly shine as it can effectively convert Excel into a web-like centralized application, with all the resulting risk-controlling advantages that it entails.

**And we come back to the ubiquitous Web again. What type of potential role do you see Sayula and AddFive fulfilling here? I mean, with something like the web-based spreadsheet collaboration capability, a web-based service business model comes to mind. What are Sayula's plans here?**

Well I'm glad you asked because we definitely have some big plans here. Together with Paul we have identified a clear need from the thousands of small hedge funds and other investment firms who will have a high interest on a web-based service whereby they can either use their own pricing models or the standardized models that we will make available as part of the service. Most of these funds and firms have neither the IT nor the quant analysis labor force or budget to implement an equivalent functionality. Such service will mean huge savings to them. And in order to broaden the asset classes that our models could support we are starting to develop partnership with specialized analytics companies.

**You are talking about potential partnership with analytics companies. How do you think that will be able to work?**

Well, since we are not attempting to, at least initially, provide our own analytics models or libraries, we have started looking into partnerships with companies like Numerix, Xenomorph, or NAG, just to mention a few. We have already started talking with Numerix, but will also like to start talking to other companies like FINCAD and Xenomorph for example. We know they also have a close relationship with Wilmott and Paul so it makes a lot sense for us to join forces. It is a win-win relationship with them providing the specialized content and we providing the immediate time-to-market capability.

**Absolutely. You are also talking about market data sources as well. Reuters or Bloomberg because you say you don't want to be seen as a threat to them. What do you see happening in the next year, what's the target for 2007?**

Well, our target is to have a base of at least 25 institutional clients by the end of 2007. The way we're planning to achieve that is through regional partnerships with system integrators. It's happening already in Belgium with ITG Consulting and it's also going to happen very soon in Japan with Simplex Technology. For them it's much easier to distribute the product with their established customer base, we then provide the specialized support and the intensive training so that they can offer first-level support on their own. We see this as an effective way to reach a wide client base while at the same time keeping a comfortable growing pace, a pace we can manage.

