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Opening Windows

Research Note

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30 July 2001

Microsoft, like IBM, is more than a company; it's an ecosystem. That ecosystem has fostered some companies, such as Citrix, which have become major players in their own right, and yet buried others. Microsoft can be the maker or breaker of these firms; with its support, a good living can be assured, without such support however the air supply can get rather thin. But the ecosystem is vast and rambling, and is alive with possibilities. For every Microsoft-endorsed partner project, there is another development that is more subversive, that takes Windows technology and appropriates it for its own ends, without worrying about what Bill might think. This is where real innovation often occurs.

A couple of small software firms are currently taking Microsoft technology and extending it in new and interesting ways. Both should interest IT architects and developers looking for ways to integrate Microsoft and non-Microsoft environments and applications.

One of these, Anysoft, has something pretty darned cool up its sleeve. Using its Digital Cortex software, anything drawn on Windows glass can now be exposed as a data object. That's right—anything. The other outfit, Intrinsyc, is building links at the system level between Microsoft and Java. The company's heritage is in pervasive automation, that is, the linking of industrial command and control systems with IT networks.

Exposing the Digital Cortex

In terms of ambition, Anysoft is a throwback to the heady days of dot-com mania. When the company's CEO looks you in the eye and says he figures the company, which has only just delivered its first product, is already worth a few billion dollars, you don't know whether to laugh in his face or start doing mental arithmetic. Company executives talk freely about how Anysoft's platform, the Digital Cortex Software Sequencing System (DCSSS), will completely revolutionize software development.

We wouldn't go that far—but the technology *is* undoubtedly impressive, and certainly could simplify many complex integration and programming tasks. What is more, you don't need to learn anything new to use it. If you have Visual Basic (VB), Borland, or Delphi skills, you're ready to roll. The software acts as a simple extension to these environments. There is no need to learn new tools. All Digital Cortex does is open Windows up.

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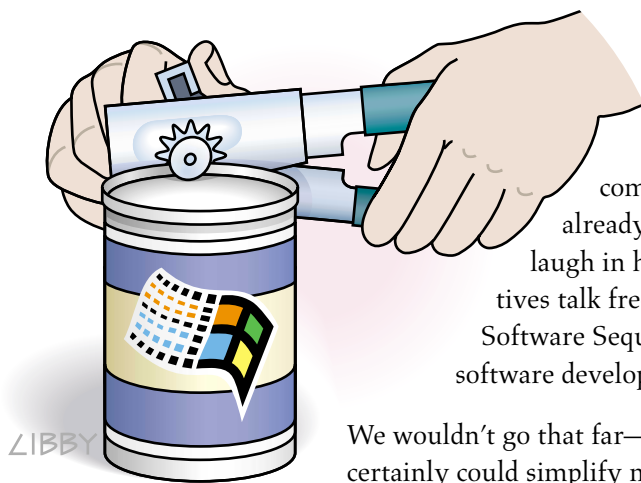
What does DCSSS actually do? Basically it can be used to expose any object written to a Windows GUI as data. This functionality includes data published to a Windows screen from a legacy application—terminal emulation, green screens, DOS apps and all, that is. Any app that writes to the Windows interface— including SAP, PeopleSoft, Siebel and every business application you can think of. DCSSS works by watching all the information flows between the glass and the operating system and then working out what refers to what, what object, what class, and so on. In essence, it's a sophisticated screen scraper for the Windows era. If that sounds trivial, think again about how much work is done to make multi-tasking multi-threaded heavy graphically oriented apps run. That's why we need gigahertz processors and hundreds of megabytes of RAM to use Windows effectively.

An analogy here is that following a particular Windows process is like trying to listen to a hummingbird over the noise of a waterfall. The difficulty of accomplishing this task explains why Anysoft's staff list is geek heaven, a mix of serious computer scientists and serious mathematicians from Israel and Kazan, Russia. Listening to the hummingbird is actually more about complex math than traditional computer programming—relying on probability theory, pattern matching, vector geometry, and combinatorics. The task is akin to encryption, which makes sense considering it is about cracking the gene code of Windows. The firm has spent the last couple of years in radio silence, busily building and patenting its technologies.

What does DCSSS mean in practice? With it, even a mildly competent VB programmer can immediately accomplish some interesting things. In the past, John Veebie often confronted annoying Windows screens that did not allow him to copy or use the data on his Windows screen. So, even putting together an app that could read and write his current IP settings to enable him to swap between two network configurations was quite a hack. John could maybe have done it, but with Digital Cortex all the data is easily available; a few clicks through and he's there. DCSSS really opens Windows up.

On the other hand it would be a mistake to concentrate too much on the desktop and GUI angle; that is just a simple example. The software has far wider application than that. After all, the Digital Cortex runtime can also be used as a server, taking data flows from different apps and making them available for a new application. Running in this mode, it can effectively act as a middle-tier integration server, taking data from pretty much any app, without needing access to APIs, database schema, or source code. It just eavesdrops on what they would display on a Windows GUI, and then repurposes that data.

Exposing this data non-invasively means DCSSS can be used in conjunction with other platforms and integration mechanisms, such as Java and CORBA. One of the first Anysoft customers is iWay, a vendor of enterprise application integration (EAI), middleware and connector technology. iWay, with one deal, now has a bunch of extra arrows in its quiver. Anysoft will use this as a route to market; expect more deals with integration server companies.

Problems? Well, the company may be a little too confident for its own good. The corporate Web site blurb is all about revolution, and after the hype of the past few years and the current slowdown, the idea of another revolution and yet more "we're gonna change the world" hype is the last thing enterprise development shops want to hear about right now. Anysoft needs to focus more on the immediate, pragmatic benefits of its technology and less on its potential. It also needs to work on its pricing model, to ensure people buy in. The difficulty here is that it has a category problem; is this middleware, a development tool, a system extension, or merely a glorified screen scraper? Prospective partners and enterprise customers could be scared off if the price of the software is too high, especially as they could likely hack solutions themselves, if not so elegantly and easily. In the long run, Anysoft can persuade these customers that DCSSS is part of the development infrastructure, an integral part of their Windows software stack, making life easier on a strategic basis. But for now it just needs to drive strategic quick wins.

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It will be interesting to see how Microsoft reacts when it comes across the firm. Any company that does anything to open Windows up tends to be seen as an "Enemy of the State". Allowing programmers to grab and change information on arbitrary Windows screens—well, that could be seen as subverting control of the Windows real estate. While Anysoft's approach doesn't necessarily tarnish Microsoft's prime directive ("Whatever stuff people are doing out there, make sure they need our software"), it could still be seen as a serious and potentially scary loss of control for Redmond. On the other hand, Digital Cortex could also be the foundation for some powerful Windows scripting for power-users and developers, which aligns it nicely with Microsoft's Digital Nervous System grand vision (which is now increasingly making its way in the world under the .NET moniker). So there are rapids ahead Anysoft will need to ride through. But if it can scale down the hype, sell the benefits, find a way to work with Microsoft (or at least not raise too much of its ire), then we just might have another Citrix on our hands.

The Intrinsyc Benefits of Janet

What is a company that builds appliances, embedded Linux reference architectures and management software for industrial automation doing in the Java to .NET integration space? The answer, as so often in IT, is that the company's customers had a pain point and Intrinsyc wanted to alleviate it.

A little history: OLE for Process Control (OPC) is a standard based on Microsoft's Component Object Model (COM). It has been widely adopted in the industrial automation sector. Intrinsyc, while working with companies deploying networks of embedded devices, found that these customers often wanted to integrate OPC with Java, but had no way of doing so. The result? It built a bridging platform, J-Integra, that links Java clients with Microsoft COM-based components. Although originally built to fix that particular problem, it has far wider applications. J-Integra is now used, for example, by financial services organizations, pharmaceutical companies and telecoms operators.

With the arrival of Microsoft .NET and the maturation of server side Java, in the forms of Java 2 Enterprise Edition (J2EE), it became clear to Intrinsyc that a new bridge was required. The name of the product is somewhat eponymous, Java to .NET—thus JaNET. It offers bi-directional links between EJBs and .NET components through Microsoft's Common Language Runtime (CLR).

For those that follow webServices technology, mental alarms might be ringing. Surely Simple Object Access Protocol (SOAP) is the preferred interoperability mechanism for connecting Microsoft and non-Microsoft environments. Why is Intrinsyc reinventing the wheel?

It isn't. Let's get some perspective on SOAP. It makes sense when building loosely coupled component-based applications, and is therefore ideal for webServices connections, particularly over the Internet. SOAP's XML foundations means it offers Big Wins from an interoperability point of view, particularly when multiple applications, heterogeneous systems, and organizational boundaries are involved. These same XML foundations, however, make SOAP significantly less performant than traditional connector techniques. When it comes to systems level integration for tying granular .NET and J2EE components together, there is still no obvious solution. Yet there is still very much a place in the world for direct component integration.

Besides, .NET and the CLR are not only targeted at loosely coupled component-based development. For many apps, the logical separation and performance overheads that development model requires are just not appropriate. Instead, something more akin to remote procedure calls (RPC) or Java's Remote Method Invocation (RMI) is called for. That is where .NET Remoting comes in. Although the technology is not getting all the media glory and attention, .NET enterprises will be using it on a daily basis.

So step forward old-fashioned middleware into the new world. Intrinsyc's JaNET works by mimicking Windows functions in order to make a Java component act like a Microsoft one. Thus a Windows .NET client can talk to an Enterprise Java Bean, but think it's talking to another .NET component.[1] In order to build products such as J-Integra and JaNET, Intrinsyc uses a

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1. In other words, a .NET analog of the automated CICS-to-EJB wrappers IBM and others have developed for application server-based integration.

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combination of published Microsoft documentation and some neat "clean room" reverse engineering. To characterize the software, it opens up some Windows functions to Java programmers and environments at the system level. JaNET is compatible with popular Java development environments such as Borland JBuilder and IBM VisualAge.

Some of the middleware leaders have already seen the value of these solutions. BEA Systems, for example, has just signed a deal to bundle J-Integra with its WebLogic application server. Rational Software has also licensed J-Integra. Both companies are likely to look at JaNET for similar deals once .NET remoting starts to become common deployed. Deals with other major Java players are already in the pipeline.

Intrinsyc should be wary of being too aligned and associated with the Java and Linux camps; Microsoft is one of the most dangerous adversaries a software company can have. What is more, there is no reason why Intrinsic couldn't align itself more closely with Redmond's needs, looking for ways to provide gateways so .NET servers could begin to control, manage and utilize distributed Java components. Intrinsyc is a gateway supplier. It should therefore be as "neutral" as possible. If the company can be seen to be neutral there would be nothing to stop Microsoft bundling an EJB to .NET tool with its Integration Server, as part of Redmond's strategy to interoperate with "legacy" environments, in order to extend them. Intrinsyc may be small, but the support of Rational and BEA means it looks well placed to do OK in revenue terms, even given current market conditions.

Steamroll or Eggroll?

Trying to second-guess Microsoft is rarely worth the effort. The company goes through too many switchbacks and strategic back flips for that. But given that it has just announced that Windows XP will not ship with a Java virtual machine, integration between the environments becomes an even more pressing issue. How will Microsoft respond when it realizes at a corporate and strategic level what Anysoft and

Intrinsyc are doing? Will it invite these companies for Chinese food to discuss partnering opportunities, or will it send out the corporate lawyers in an attempt to roll over these firms?

That really depends which Microsoft it is that does the realizing. The company is currently vacillating on some key issues; it is going through some growing pains that give it a Janus two-face. The control freakery of Bill Gates is currently being challenged by a new generation of Microsoft executives that are more open to heretical ideas such as open source development and collaboration. Sometimes the company seems open to working with folks, other times it is the heads-down chin-out juggernaut of old. The jutting chin one is currently at the "negotiating" table with the DoJ. Microsoft may find that it takes a solid punch on that chin, however. The Bush administration may be the most business-friendly ever, but is also keen to show its strength and unwillingness to be pushed around.

Second-guess time it is, though. Microsoft is likely to approve of Intrinsyc as a straight-forward interoperability mechanism that will help its customers (to build .NET solutions), because it is seen as a gateway, and therefore reasonably non-threatening. Anysoft could be similarly accepted—or on the other hand, its software could be seen as a dangerous and radical opening up of Windows in a way not under Redmond's control. Both companies should prepare themselves accordingly, because the integration opportunity awaits. For customers however, this opening up of Windows offers clear benefits, ensuring that interoperability and integration between Java and .NET are more than marketing terms. User organizations are currently wary of working with smaller vendors on the grounds that they may not survive the current economic downturn. But in the integration area smaller firms have fewer vested interests and are more likely to have customer pain at heart than selling more portfolio products. Anysoft and Intrinsyc are definitely worth looking at because they are trying to open Windows rather than trying to replace it.