Can Business Integration be Exciting?

By Peter Beggs

The Commercial

Two men are seated before a laptop, Business and IT. IT is showing Business the new company web site. IT is animated and excited about the content, the layout and how icons turn to flames when selected. Business nods but is more restrained in his excitement. Business then muses: "What if the order the customer enters here could be sent automatically to the Order System, which could check Inventory, then Shipping, and lastly send the needed request to Billing, which could check Credit and return a Confirmation to the customer?" Nodding, Business declares, "Now that ... that would be great!" IT is perplexed and says "I ... I don't know how to do that." Fade to blue while jingle plays with voice over "And then it hits you. You are so ready for IBM Middleware." In less than two minutes this television commercial, played a number of years ago, aptly captures the essence of Business Integration.

But what is the value of Business Integration? In the commercial, Business likely considered such things as improved cycle time, fewer errors, less cost to build, deploy and maintain solutions as well as less operational cost. Perhaps improved customer satisfaction or a competitive differentiator was his motivation. In some industries, there are regulatory requirements. Perhaps business integration delivers solutions where traditional solutions are too costly, expensive or not practical. Just a few of the reasons our customers (in this case, Craig Oddy and Scotiabank) cite for focusing on Business Integration include:

- Increase customer satisfaction and process quality
- Load balance, optimize, and prioritize work assignments, use people more wisely
- Better manage operations, exception-based model
- End-to-end tracking with automatic auditing
- Dynamically change processes for business agility
- Create a flexible environment for functional and scaleable growth
- Tie disparate "pieces" together into integrated scenarios
- Position for re-use
- Improved Customer Satisfaction and Reduced cycle time 30-40% (Wachovia)

How do you know you need it? Here is a short test defined by our customers:

- Can you visualize how work gets done? Do you know what people do the most (you may be surprised)?
- Is the process fast enough from start to finish?
- Too much manual work?
- Too many errors?
- Need to ensure policies and business rules followed?
- Too much paper?
- Are people working effectively?
- Is audit a concern?
- Is it easy to reach into, "to see", and measure the business? In real-time? What can you do with those measurements?
- How do you decide what to change? How do you "business case" changes?
- How easy is it to change how you work? Can you analyze it before making changes? Are changes a programming effort or a business analyst effort?

So what is Business Integration? In the past we spoke of EAI – Enterprise Application Integration – the ability to have applications connect with each other to exchange information. Moving information is indicative of work being done and the industry's focus has shifted to what this work is and how this work actually gets done. With many names, this is essentially Business Process Management (BPM) and encompasses architectures, approaches and deployment of technologies. There are five key capabilities to consider:

1. **Model** – Design, simulate and plan business processes
2. **Integrate** – Link people, processes, applications, systems and data
3. **Transform** – Create new business value from existing IT systems
4. **Interact** – Provide secure, single point of interaction to people, data, applications and processes accessed by any device, anywhere, anytime
5. **Manage** – Optimize performance against business measures
6. **Accelerate** – Deploy pre-built intelligent business processes

So, how does IBM apply these five capabilities in delivering solutions? And what is the value in doing so?

Model

In the commercial, Business **visualized** how he wanted the business to work and he was speaking independent of underlying technology. He had a business view of work being done – the Business Process Model. Would it then not be great if besides visualizing work, he could analyze it, simulate it, and understand the dynamics of cost, time, and resources of his visualization? Typically, customers may document business models via charting tools or "stickies-on-the-wall" but we need to bring that model alive. This is our first concept of Business Integration:

1. Build a process model, perhaps of how work is done today – the "as-is" model
2. Simulate the model and analyze costs, timings, and bottlenecks looking for areas where the way work is done does not make sense and should change.
3. Generate detailed comparisons and cost justifications between the "as-is" and the "to-be" process model and provide a means to instantiate enterprise policies, business rules, and procedure documentation.
4. Build the "to-be" model. Perhaps there are other pre-built processes (third party or by the customer themselves) that can be reused in this new process. Compare the "to-be" model to the "as-is" model to determine if we are making the improvements the business needs.

How is this accomplished? The tool used here is the **WebSphere Business Integration Modeler** and is a drag and drop; fill in the blanks, visual construction paradigm as illustrated in **Figure 1**.

Analysis can be done via simulations, use-case scenarios, reports, and much more, all generated by the tool. Business can drive quickly to a viable business process which satisfies requirements and at this point Business will almost certainly ask: "Can I deploy the model? Can I run it in production?"

The answer is "yes".

Business turns the model over IT for deployment but before we discuss how this is done, lets go back to the commercial. As Business describes how he would like the business to run, he alludes to two key concepts of Business Integration. The first concept is the **Service Oriented Architecture** or SOA.

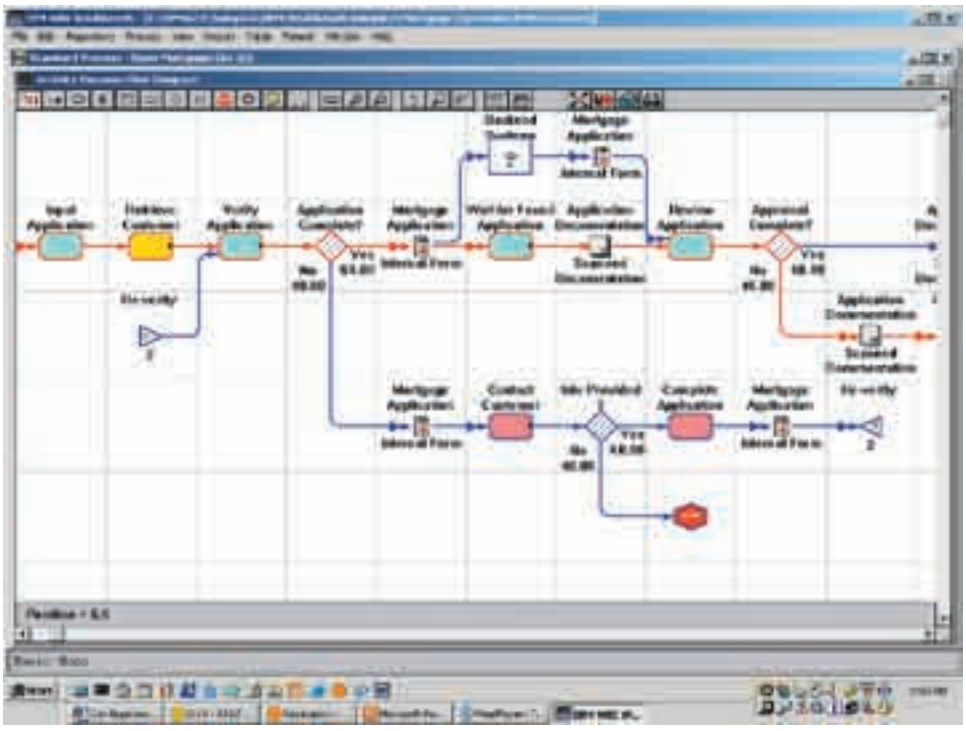

Figure 1

Service Oriented Architecture

In the commercial, Business described a set of Services (Order Entry, Shipping, Inventory, Billing) strung together to get work done. The string is the process model described above and each of Order Entry, Shipping, Inventory and Billing are services invoked by the process to get a piece of work done. Those services may be applications, a collaboration of applications, ERP systems, external systems, manual steps, and so on.

There is one more important aspect to SOA – recognizing the Process Layer. In the past, whether we realized it or not, we built process, or workflow, into our applications. We hard coded such process logic or had people do it manually. This approach made solutions monolithic by functional or organizational silo. Applications were not designed necessarily to work with each other and we often built much "glue code" to accomplish integration. Therefore, one key element the SOA enables is the recognition of the process layer. Just as we recognized the Presentation Layer, the Data Layer and the Business Logic Layer, we now recognize the Process Layer, previously buried elsewhere. Recognizing the Process Layer allows us to use visual tools and moves rules and constructs into an environment simpler to change and deploy.

Enterprise Service Bus

To enable the process layer requires the second key concept of Business Integration, the **Enterprise Service Bus** (ESB). The various services plug into the Enterprise Service Bus, which provides capabilities to move information from one point to another. (See **Figure 2**.) The pipe is intelligent and includes a range of services including various transport mechanisms delivering synchronous and asynchronous, loosely coupled and tightly coupled, persistent and non-persistent capabilities. Furthermore, the ESB provides mediation services (information routing and transformation) and event-driven publish and subscribe. In other words, any service that plugs into the ESB can exchange

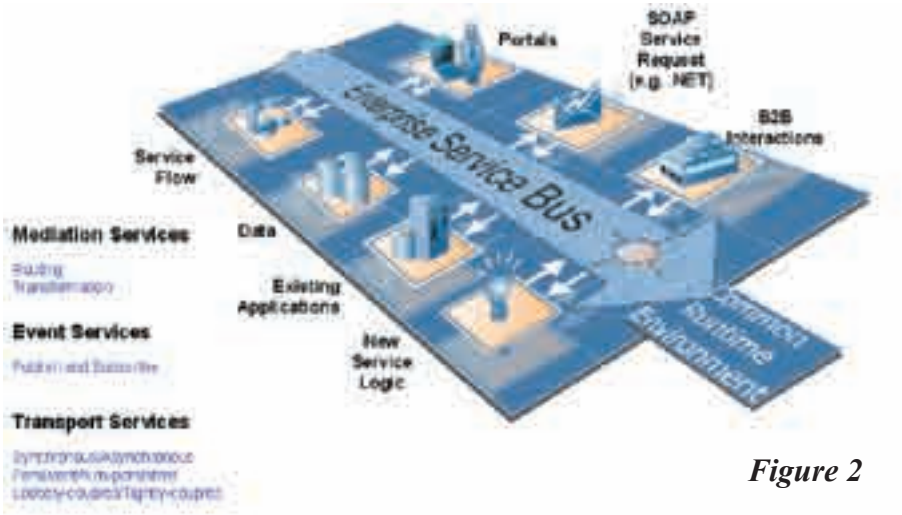

Figure 2

information with any other service plugged into the ESB. Differences in protocols, data formats and applications are managed by the ESB, not the application. Very powerful…

These two concepts, Service Oriented Architecture and Enterprise Service Bus, provide the foundation for a set of runtime capabilities: Integrate, Transform and Interact.

Integrate

As discussed, the Business builds the Process Model and IT prepares it for execution into an environment where services are connected to an Enterprise Service Bus. The process model indicates which service is invoked, and under what criteria, in order to fulfill a particular step in the process. An important bridge exists here between Business and IT. Business has built a process model with no direct implied technology. The second step in the process model development occurs as Business turns the Business Model over to IT. IT, using the same process model, and same tool, adds the necessary information needed to make the model execute. That is, where Business indicated "Get Customer Data", IT knows that the "Get Customer Data" process step is fulfilled by invoking the "Get Customer Data" service which might be a transaction running on an iSeries machine or a collaboration of back-end services to deliver the necessary data. In the WebSphere Business Integration Modeler, IT simply uses the same process model but selects "Integration Mode" and selecting process steps will prompt for additional information via tabs. Now we will have a process model that can be deployed to a runtime process engine such as WebSphere Business Integration Server. The runtime may also be complemented by technologies such as:

- Messaging,
- Message Brokers,
- Workflow and Collaboration Engines,
- Database and federation of multiple data sources,
- B2B,

… and so much more! Again, all integrated via the ESB and in context of the SOA.

Transform

An important requirement is being able to represent 5250/3270 green screens as a service to be used within the process. Products such as WebSphere Host Access transformation Server (HATS) makes your 3270 and 5250 applications available as HTML through a web browser. The power of HATS lies in its ability to accurately recognize the components of host screens and transform them in real time to a Web interface according to a set of predefined rules.

It is easy to modify the rules according to the specific needs of your application. With HATS, you can add a variety of

elements to your host screens, such as drop down lists, hot links, tables, buttons, valid value lists, tabbed folders, and graphs. You can also add HTML elements such as logos, graphics, backgrounds, and Web links.

Interact

Often when discussing processes we think only of application-to-application interaction but this only part of the solution. During a process execution there may be a need to require a human to make a decision, or to wait for a fax to arrive, or data from another source such as police and medical reports in an insurance claims process. There is a need to provide many channels of interaction with the process.

A Portal provides a view into a process and using Portlet technology, a very high strength view. Imagine a process requiring a claims adjuster to make a decision pertaining to a suspect claim. A work item is displayed via a browser, perhaps as a pop-up window. Selective the work item, the Portal refreshes the browser and all the Portlets with the information necessary for the Adjuster to make a decision. One portlet may have photos and field information, another police and medical reports, a third may have company policy, a fourth may be a collaborative portlet so the Adjuster may discuss with others, with yet another portlet giving the policy guidance to the Adjuster. Lastly, the process engine displays the various actions the Adjuster may take

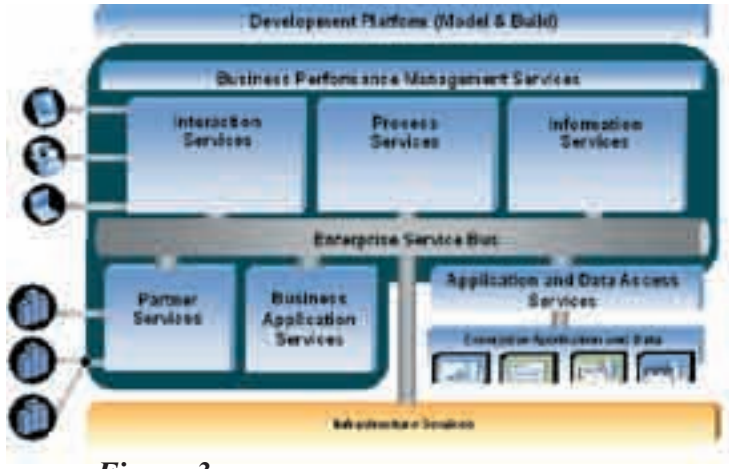

Figure 3

(approve, reject, require more information). This personalized portal can control what the Adjuster can see and will authenticate access and the process engine enforces policy.

Besides human intervention in the process, there may other access requirements and interaction with other subsystems. Cell phones, PDA's and other mobile devices, fax machines, content and document management systems, automated voice systems, represent just a few of the many access points. Rather than build infrastructures for each method, these various capabilities are viewed as services, interconnected via the ESB and so a query of a process status made by a call centre will appear to the process engine the same as the query from a mobile device. Security and personalization will of course manage and control the access.

Manage

Inevitably customers will ask to "see into" running processes, either in real-time or over a historical period of time, say last quarter. Business and IT need to monitor how the business is running. The Monitoring capability displays such information from a variety of environments to allow decisions or to optimize a process or to take administrative actions such as stopping work or reassigning work. Importantly, whatever business measures are gathered, we need to be able to feed those metrics back into the process model. In this way, our process model behaves more closely to reality. Information and measurements are displayed via customizable role-based dashboards that can generate reports based on the data gathered. This capability is provided by a number of complementary products such as WebSphere Business Integration Monitor. Integration with systems management capabilities such as Tivoli is key in order to get an end-to-end view of the business.

Accelerate

Accelerators are often overlooked but are very important in the quest to provide rapid deployment of quality components. Think of accelerators as reusable parts, off-the-shelf, or customizable. Examples include:

- Commerce framework and components for optimizing marketing and business relationships, channel management and, of course, conduct commerce.
- Cross-industry solutions encompassing composites of technology for specific industries such as automotive,

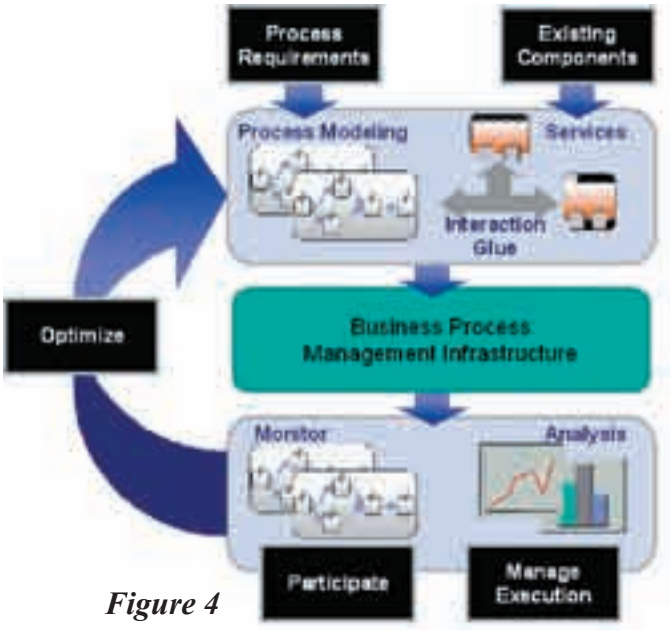

Figure 4

government, retail, manufacturing, telecommunications and others.

- Adapters, the plugs into which services attach to the ESB, is one area where customers might spend significant effort to construct. Off the shelf adapters mean no changes are required for the applications themselves but provide intelligence to interact with the applications. Intelligence means restricting the uniqueness of the interface to the adapter so changes do not ripple through the infrastructure.
- Collaborations are customizable business process templates especially useful where a service requires interaction, or collaboration, between multiple back-end systems. To the requestor however, it appears as a single service request.
- Portlets are available from a number of sources enabling many services to have a browser-based interface.

Recap

We have discussed taking the Business vision, analyzing and simulating it, and finally making it real through deployment. Deployment into a functionally rich runtime environment built as a Service Oriented Architecture running on an Enterprise Service Bus. We can monitor our businesses via customizable dashboards taking all the metrics back into the business model for further optimization. Expediting deployment uses the various pre-built parts or accelerators. All of this comes together in the **IBM Business Integration Reference Architecture**. (See **Figure 3**.)

And one area we did not discuss was the magnitude of services available to both help with deployment but also the business side in developing competencies in process management. The Business Integration Reference Architecture (**Figure 4**) supports the process cycle of Business Modeling and Analysis, Deployment (integrate, transform, interact, accelerate) and Monitor.

Prove it!

The list of customers, across all industries and governments is extensive and we cannot do justice to the value WebSphere Business Integration has brought to these solutions.

Please refer to our Customer Reference Database at http://www-306.ibm.com/software/integration/wbiserver/ (Select Success Stories.)

There are also so many others who are not public references because the value of IBM's integration solution is so critical to their differentiation and value, what and how they use it remains their secret. There is also so much more to say about the breadth of IBM technologies, but that's for another day.

So, in a few words we have looked at the IBM Business Integration Reference Architecture. We have looked at the various capabilities and the value such technology delivers to customers. We have left some homework to check out the WebSphere Business Integration website. Back to our commercial, IT now knows how to deliver what Business envisions. And that is great!

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