

BPM and SOA

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Hello and welcome to Business Process Trend's new column on Service Oriented Architecture. In this column we will address how trends, techniques, news, and events surrounding SOA relate specifically to the business process field.

For example, a few weeks ago, just such a headline read "Enterprise SOA Enabled by new OMG Standard Business Process Modeling Notation (BPMN)." What the headline referred to is the progress of the BPMN specification introduced at the most recent Object Management Group meeting in Burlingame California. You may recall that BPMi.org, the previous steward of the specification, merged with the OMG in June 2005. Since then, BPMN has been closing in on completion of the OMG's fast track adoption process and had just passed a critical vote at the Burlingame meeting.

I think the merger of these two organizations is a good thing. It gives each organization more reach and clout, and, technically, it just makes good sense. The OMG had already been working on an underlying metamodel for defining business process models – the Business Process Definition Metamodel (BPDM), so aligning BPMN with that seems obvious. And, since BPDM conforms to the MDA initiative (i.e., is based on MOF), this means that it will be possible to define and create standards-based transformations from BPMN models into other MDA models, for example J2EE or other platforms such as Web Services or EAI. Maybe this was what they were thinking about, but other than a nice bit of marketing, what does "BPMN enables enterprise SOA" really mean?

To understand that, we need to understand the relationship between BPM and SOA. Where does one leave off and the other begin, or what is the overlap between them? Business Process Management (BPM) empowers a business analyst to align IT systems with strategic goals by creating well defined enterprise business processes, monitoring their performance, and optimizing for greater operational efficiencies. Each business process is modeled as a set of individual processing tasks. These tasks are typically implemented as *services* within the enterprise. The BPM system provides a toolset that allows the business analyst to create process models, using notations such as BPMN, and then performs the business process automation, or execution of the model, by invoking the services. Additionally, the BPM system may provide monitoring and management capabilities.

The catch is that enterprises want to leverage their existing systems and include them into the new business processes. Unfortunately, enterprises have tremendously complex IT environments that have evolved, often over several decades, using different platforms, different technologies (Java, .NET, CICS, etc.), and different communication standards. This is a problem that enterprises have struggled with for years through a string of promising (or over-promised) technologies. Web Services, the latest and current favorite, have the potential to solve these platform and communications issues and provide new interfaces (service wrappers) to those existing enterprise systems. This is convenient, since it is these service interfaces that the BPM systems need to call when invoking the process tasks. But simply using Web Services, or wrapping existing applications as services, does not qualify as a service oriented architecture. There is much more involved.



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So what is the difference between SOA and Web Services? Web Services are a set of technology for distributing business functionality in the form of services, such as the legacy system wrappers just discussed. On the other hand, SOA goes well beyond the details of connectivity or interface technologies to get to the “what,” not the “how” of services. My definition is “SOA enables the independent construction of services which can be combined to realize meaningful, higher level business processes within the context of the enterprise.” What that means is that SOA provides the context that allows enterprise capabilities to be composed together into business processes across application and organizational boundaries.

In order for the composition of services to result in actual, meaningful business processes, all of the services that are composed together need to share a variety of important characteristics, most importantly a common understanding of the semantics of the new process. In addition, we have to face the realities of enterprise development. The different services that need to be composed into the enterprise processes are going to be built by several different, and probably independent, organizations. So, the SOA has to put enough context and structure in place to make it possible for these different organizations to build services independently (according to their own business priorities) and still have these services work together at an enterprise level.

SOA has to address how services communicate at a technical level; how services are constructed; the different types of services and how they relate; how services are combined together (i.e., orchestrated); how services interoperate at a semantic level (i.e., how they share common meanings); how services support business processes; and how services contribute to IT and Business Strategy.

So the key question to achieving BPM and enterprise SOA is how do we get from here to there? How do we bridge the tasks of our business process definition and the operational systems that implement our enterprise capabilities, and how do we do so while creating a reusable set of well defined business services? In his December MDA Journal, “Scaling the Business Process Platform Up: The Challenges,” David Frankel describes how composite applications (those defined by BPM models) are supported by the business process platform. The platform is composed of two layers, the technical platform layer, where Web Services and other middleware reside, and the application platform layer, where reusable services are executed. It is this application layer that SOA describes. David goes on to discuss many of the technical challenges of the Business Process Platform and several opportunities for technical solutions. And while all of it is true and important, I maintain that success in SOA is fundamentally not a technology problem.

In last week’s email advisor, “Core, Management, and Enabling Processes,” Paul Harmon pointed out one of the major challenges that we face. He said, “Most process analysts...only focus on the specific activities within the process they are concerned with analyzing. Unfortunately, too many analysis efforts focus so narrowly on the sequence of operations being analyzed that they forget that the specific activities they are working with need to be managed and supported.” The same can be said about the need for processes or tasks to have a larger



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context, to support shared data, to eliminate redundancy, and to be reusable across processes, lines of business, or the enterprise.

BPM provides a wonderful abstraction for building business systems. But all too often I see BPM being used to build higher level, more efficient, but nonetheless silo applications rather than contributing to an overall flexible, agile enterprise. This is where SOA comes in. SOA provides the application platform that bridges the business processes and the operational resources, as shown in the figure. At the business process level, it provides interfaces that directly support executing process tasks, but it defines those interfaces within an enterprise context to support consistency and reuse. At the operational resource level, SOA exposes existing capabilities as integration services. But it doesn't do this by directly mapping existing applications as services. Rather, it provides new service interfaces based on enterprise semantic and functional requirements, and maps them to the existing systems. Finally, it joins these top and bottom layers together through service composition to create the application platform layer.

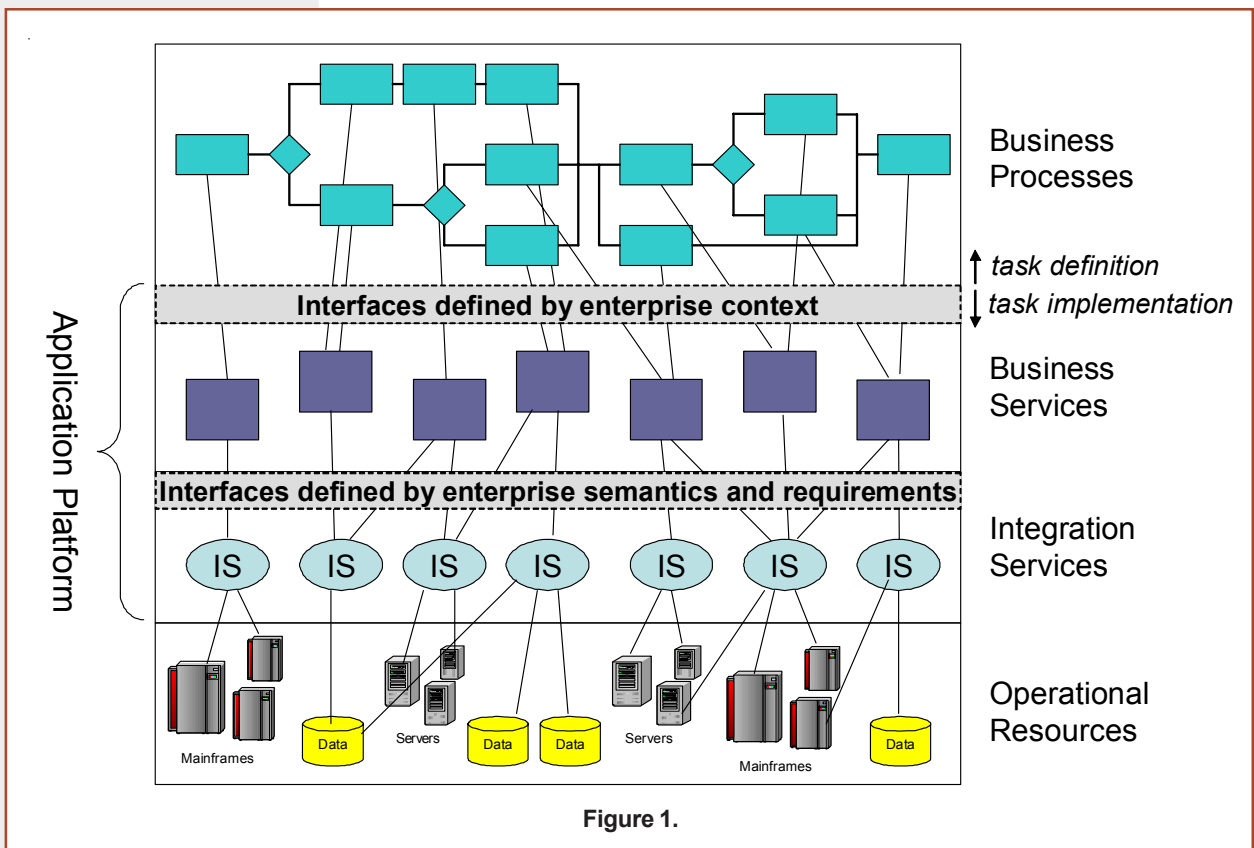


Figure 1.

Together, BPM and SOA provide a perfect combination for enterprise computing. BPM provides the higher-level abstraction for defining businesses processes, as well as other important capabilities of monitoring and managing those processes. Services provide the functions that support those processes. SOA provides the capabilities for services to be combined together and to support and create an agile, flexible enterprise. BPM without SOA is useful for building applications,



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but difficult to extend to the enterprise. SOA without BPM is useful for creating reusable and consistent services, but lacks the ability to turn those services into an agile, competitive enterprise.

So I guess we could say that BPMN, because it is part of BPM, enables the flexible enterprise based on SOA; or, we could say that the headline was just a bunch of marketing hooey; or both. I will leave that for you to decide. Either way, it is an important step in the right direction.

