Extreme Competition

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Process on Demand and Cloud Services

*Adapted from **Enterprise Cloud Computing** (www.mkpress.com/ECC)*

Jim Sinur, my long-time colleague and Vice President at Gartner Research, recently blogged that it seems BPM is finally catching up with some of the core ideas Howard Smith and I proffered *way back* in 2002 in our book, *Business Process Management: The Third Wave.* Wow, that's almost a decade ago (a century ago in Internet time) since we wrote about the dynamic, on the fly capabilities enabled by "mobile" processes (remember pi calculus?). Jim writes that BPM is now shifting focus from "Doing by Design" to "Design by Doing" in its efforts to reach the knowledge worker, support innovation, and provide better customer interactions, particularly over the mobile experience on the Web.

- *Doing by Design* is the pre-planned definition of a predictable, routine process, as traditional BPM suggests. The BPM lifecycle covers modeling, deployment, analysis, and optimization. This all works if the processes are *predictable,* as are routine, mechanistic processes.
- *Design by Doing* is an approach that works when the process is not predictable, and can not be written down ahead of time. Since you can not predict it, you have to elaborate it as you go along. This works for organic, unpredictable processes. The process design *emerges* from the *doing*.

Jim writes, "As BPM picks up more 'Design by Doing' aspects, BPM will reach new audiences, such as knowledge workers at various levels in the organization. Gartner is calling this kind of BPM 'Social BPM' as discovery and enablement of interactions becomes more important and prevalent."

 "In processes that are purely collaborative and dynamic, the process goes where it wants, guided by knowledge workers as long as it stays within constraints (special kind of policies and rules) and stays 'on point' to the desired KPIs. Afterwards, the process paths, collaborations, and collisions with constraints can be tracked in automated ways to discover repeatable success patterns, better practices, and worst practices. This, in turn, will give knowledge workers information on patterns that are successful, leveraging creative collaboration with individuals within an organization, and within a multi-company value chain. This kind of discovery is what I call 'Design by Doing,' aided by automated process discovery technologies and social BPM that can offer alternatives and additional knowledge for high-level knowledge workers.

"Some folks in the industry would call this 'case management,' but I think folks are trying to fit an older technology pattern to something new and emerging. Calling it 'Adaptive Case Management' is better, but it still falls short in describing where BPM is heading."

As I've written before at BPTrends and elsewhere, I'd go one step beyond case management in

describing the future of BPM and point to the term Human Interaction Management (http://tinyurl.com/3xjk9lh) powered by a Human Interaction Management (HIMS) that has mobile processes, speech acts, role activity theory, and multi-agent systems at its core (the solid underpinnings needed for bringing order to the chaos of unstructured communication):

- "The Greatest Innovation Since BPM:" http://tinyurl.com/2frtkgc
- "On the Road to Tacit Interaction Support:" http://tinyurl.com/2fkurrx
- "Work 2.0: The Future of Work:"   http://tinyurl.com/28oa9fl

Process on Demand

So, let's bring all this back to the current state of BPM that Jim talks about, and shed some light on the relationship between BPM and cloud computing. While I've written before on the BPMS and Human Interaction Management, I'd like to focus now on the term Jon Pyke of the WfMC coined as "Process on Demand."

Without BPM, the Cloud remains a passive environment. However, we need to be very clear; process management in the Cloud is not just about BPM Suites on demand. The term "BPM on Demand" is beginning to take on a new meaning when used in conjunction with cloud computing. The traditional use of BPM on Demand is often used to describe Software as a Service that delivers a BPM Suite as a Service (BPMSaaS), much the way customer relationship management (CRM) applications are delivered as a service (e.g., Salesforce.com). Both use a pay-per-use or subscription pricing model. BPMSaaS provides a full suite of BPM lifecycle capabilities, from modeling to deployment, and on to analysis and optimization. It's a third-party Cloud alternative to deploying a BPM Suite in house.

But there is much more to BPM on Demand.
If we take the stance that the Cloud can deliver an infinite number of business software services, then we need a mechanism that makes it relatively easy to choreograph those services – on the fly. This is where "Process on Demand" comes in.
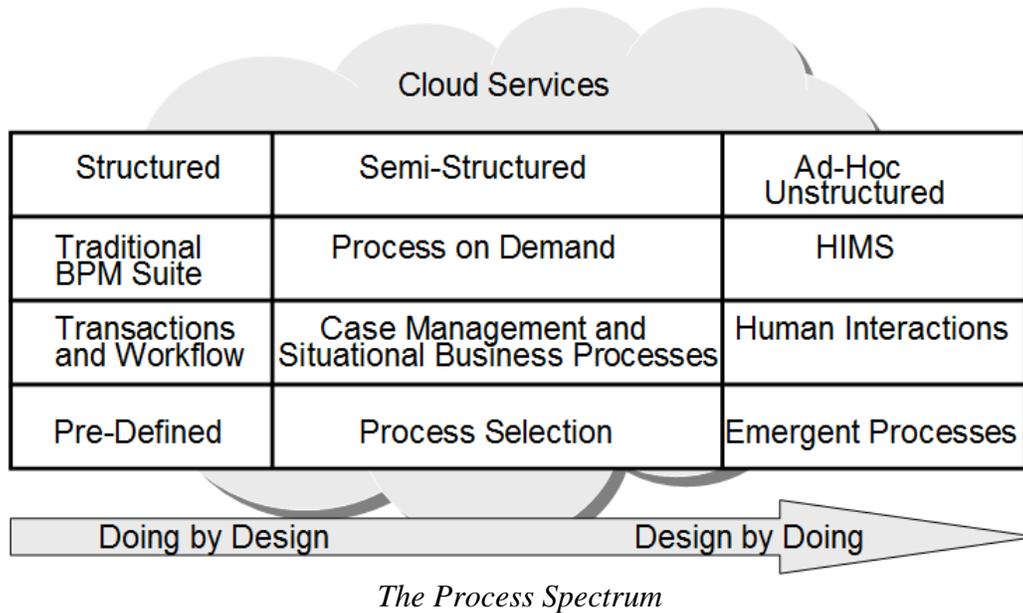
Process on Demand means having the capability to call up services needed to change or augment a process that is *already being executed.*

The services we are talking about are not the usual, fine-grained ones normally associated with the IT world. These services are far more sophisticated than simple "get data/put data" activities. What we have are services that contain
- User Interfaces
- Business Rules
- Key Performance Indicators, and
- Metadata

In short, we have everything that makes up a self-contained service that can be incorporated into an end-to-end business process. Why do we need this type of capability? In a word, *simplicity* that gives us some degree of *order* in a world of growing *chaos* (think *chaordic*, the term coined by Dee Hock, the founder and former CEO of the VISA credit card association).

The concept of Process on Demand enables you to build dynamic processes that can be created or changed "on demand" to meet changing business needs. Think of Process on Demand lying somewhere in the middle of the spectrum from highly-structured processes to completely unstructured ad-hoc processes.

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Cloud Services		
Structured	Semi-Structured	Ad-Hoc Unstructured
Traditional BPM Suite	Process on Demand	HIMS
Transactions and Workflow	Case Management and Situational Business Processes	Human Interactions
Pre-Defined	Process Selection	Emergent Processes

Doing by Design   Design by Doing

The Process Spectrum

Dynamic process selection provides a substantial improvement in flexibility and reduces design complexity. This is especially relevant when it comes to case management and *situational business processes* adapted to completely new business situations: new initiatives, new campaigns, and new projects (see: http://tinyurl.com/2ufejzn).

But let's dig a little deeper to see if those advantages are sufficient enough to achieve the gains in agility, scalability, and robustness needed to meet the ever-changing requirements of today's business environment.

When developing business processes, it is quite often very difficult to determine what will ultimately be needed in terms of documentation, subprocesses, timing, and dependencies of tasks to accomplish some given requirement. For example, in designing a process to handle an insurance claim for a traffic accident, the analyst may know that the customer will need to get his car assessed for repair and that a payment may or may not be forthcoming, but may not know the types of documentation (e.g., the mechanics costing, police witness reports, and hospital bills) that will potentially be required to process the claim, nor will he or she know the dynamics that determine which one or ones of many possible documents to use.

These interrelated paths through the claim process may already have been defined by different people in different parts of the organization as self-contained business services or subprocesses, and may be changed frequently as the procedures and rules change. In such cases, it is not possible for the main claim process to determine, even dynamically, what particular services to use. All the developer knows is that a particular goal is to be achieved, but exactly which services can be used to achieve it cannot be easily determined. Nor, in fact, does the developer really care – He or she simply wants the goal accomplished in an appropriate way.

To solve this problem, we need a repository where we can keep the services for use by the company. What differentiates these services from subprocesses or data integration tools is that our Cloud applications know (via metadata) what each service does, the circumstances in which it can be used, and the goals and outcomes that are required.

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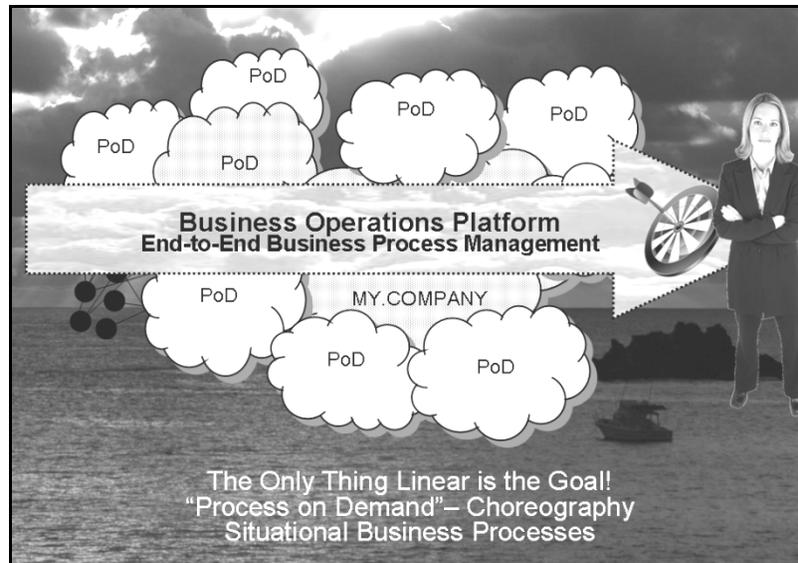
BPM in the Cloud

In addition, each service is tagged with the circumstances in which it can be used, defined as an "entry condition" for the process. The entry condition is a conditional statement defined over the case data and any subprocess parameters. For example, the service "Assess mechanical condition of vehicle" may be tagged with the entry condition "CarAge > 10" where CarAge is a field of the case data. Other services would be similarly tagged.

Such tagging allows us to define which required services are available "on demand." By this means, the calling process simply needs to access a service in the process flow, leaving it to the system to determine which business service best achieves the goal in a given circumstance. During the execution of the process, all those services that satisfy the goal are known so that on evaluation of a value or the detection of an event, the service that is required can be incorporated and executed in real-time. This makes each iteration of the process totally different from previous or subsequent processes, depending on the dynamics in play at the time.

Modern BPM capabilities allow us to use different services for different goals and desired outcomes – all with no coding required.

The important point is that the condition that defines the "applicability" of the service is attached to the service, not the calling process. The calling process need not know or specify the selection criteria. This greatly simplifies the construction of the overall end-to-end process. The developer of the overall process need not know how many services are available to achieve the desired outcome, their names, or the criteria that determines their use – all that needs to be known is that at least one such service exists.

The main process is simple, the "happy path," and is therefore easily understood. New services can be added or removed without any change whatsoever to the calling process or processes.
For example, when an airplane lands at, let's say, London's Heathrow Airport, a sequence of events (a process) is triggered to quickly and safely prepare the plane for its next flight. The top-line process – prepare plane – is always the same, but the companies and individuals performing the parts of the overall process will change according to time of day, availability of components (e.g., jet fuel), next destination, and myriad other reasons. The important thing is that the plane has everything done to it that needs doing – regardless of the services used. The needed services are changed dynamically, depending on need.

However, how do we handle the exceptions, and less formal tasks of the case worker? What do we do when things don't go to plan or they can't be defined ahead of time?

We all work in unpredictable business environments. So to understand how Process on Demand can help, we need to understand what people do. Knowledge workers have well defined objectives and goals, but how they meet them depends on many factors – availability of documentation, response from others, and so on. Therefore they have to keep track of their goals and their current situation, and then dynamically choose the sequence of tasks and processes that can meet their immediate needs. At each moment in time they select a subprocess and new process participants that get them from where they are to where they want to go next. And they continue to do this even as processes fail and unexpected events occur.

It should come as no surprise to learn that the same mechanism for handling exceptions and failures and the unexpected comes into play. For example, suppose a service has been selected to achieve a given goal. If the service fails or causes an error condition during execution, the calling process detects the event and swaps in a service designed to handle errors. If a document arrives unsigned or filled in incorrectly, this can be noted and a different set of actions can be initiated to complete the task at hand. As a result, contemporary process management systems are far more robust for handling exceptions, failures, and incomplete process specifications.

Just as there may be many services and methods for achieving a given goal, there also may be many internal and external providers of those services. Process on Demand, using the loose coupling of services, can make main processes easier to maintain – more robust and more elastic – reflecting the key benefits obtained from cloud computing as a whole.

However, the notion of Process on Demand, as described here, adds greatly to the robustness of Situational Applications. Conventional mash up application deployments tend to ignore the impact of possible failure of a service provider. What we have outlined is a well-grounded method for handling such situations. If a particular service provider cannot meet its agreed service level agreements, the on-demand nature of Process on Demand ensures that another provider will be contacted and brought into service. So if Company A cannot respond within the requisite timescales, the application can turn its attention to company B and fulfill its needs from them without user intervention.

More complex applications can be built easier and faster simply because it is no longer necessary to encode all the special cases for dealing with a complex unpredictable world. In summary, the benefits of the Process on Demand approach are

- Far quicker application development
- Faster ROI and time to value
- Applications that are easy to change and maintain
- Software that becomes more extensible and easily reused
- Software that is more robust and reliable
- Reduced complexity: simple, modular components, easily validated and inspected, self contained, accessible to both business analysts and IT developers
- Development that can be done in bite sized chunks

Think of migrating from transaction chains to information chains, and then on to knowledge chains. Taking BPM into the Cloud means that the focus has moved up from technical infrastructure implementations to mechanisms that access and manage business services as complete end-to-end business processes.

> Without BPM, the Cloud remains a passive environment that undoubtedly saves you money and removes some of the operational headaches, but does little else.
> The Cloud without process cannot deliver on the promise of services innovation.

To recap, Process on Demand means having the capability to call up services when needed to change or augment a process that is *already being executed.* This capability is an intrinsic part of the Service-Oriented Enterprise, Human Interaction Management, and Design by Doing. But don't forget the auditors! Compliance mechanisms are needed across the process spectrum. We're not talking about free-for-all mash up apps or the chaos of emails and spreadsheets. Management control and auditability must be a foundation for software support across the process spectrum.

Takeaway

One thing is certain in the world of unexpected, exponential change we now live in – More change, faster!

The Cloud can help businesses become more responsive to change – of that, there is no doubt. But at its heart lies the process layer, and that is where BPM in the Cloud can revolutionize the way business services are created and consumed. The Cloud will be a huge collection of services based on standards. Many services can be integrated into existing business processes on the fly via Process on Demand and HIM capabilities, allowing organizations to become more modular and agile – This is the stuff of competitive advantage in the 21st century.
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Author

Peter Fingar is regarded as one of the original promulgators of business process management since the publication of his book coauthored with Howard Smith, *Business Process Management: The Third Wave* (Meghan-Kiffer Press). As a former CIO and college professor, Peter has been working at the intersection of business and technology for almost 40 years. His recent book, *Dot.Cloud: The 21st Century Business Platform Built on Cloud Computing*, is a best seller, along with Chinese and Russian editions. He has joined forces with Jon Pyke, founder of the Workflow Management Coalition (WfMC), and Andy Mulholland, Global CTO of Capgemini, to pen the highly anticipated book, *Enterprise Cloud Computing: A Strategy Guide for Business and Technology Leaders.* Peter delivers keynote talks across the globe and is speaking this year in Asia, Europe, and the Americas (www.peterfingar.com).

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