



Apply DevOps best practices to the BPM lifecycle

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■ **Business process management aids application development**

VALERIE SILVERTHORNE

The time when software developers were only concerned about software development is over. Today, software developers not only need to know what the business side is doing, they must also understand it and be able to put it in the context of their current project.

That's where business process management (BPM) comes in. When done correctly, BPM results in smooth workflows, on-time delivery and happier employees. But it's not that easy to roll out the BPM lifecycle, particularly in companies with existing Agile or DevOps deployments. A move to BPM can be seen as "one more thing to deal with," rather than a step in the right direction. So the challenge is clear.

In the DevOps world, where -- in theory, at least -- Dev and Ops work seamlessly together, BPM offers a way to bring everyone closer, including the business side. Some would say that the BPM lifecycle is a prerequisite for

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DevOps 2.0, or what some call BizDevOps. It's certainly true that a strong BPM foundation sets the stage for stronger teams, and that matters very much to companies attempting to roll out DevOps. BPM can give all groups common language and processes and reference points to aid in decision-making.

For companies trying to take DevOps to the next level -- digital transformation -- BPM is not an option. To transform an organization requires a steady hand, access to details and processes and a way to keep track of it all. If the BPM lifecycle is rolled out slowly and thoughtfully with an eye toward organization-wide changes, it can be the backbone of digital transformation.

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DARRYL TAFT

There has been a fundamental shift in the application of business process management systems over the last few years to where these platforms are now increasingly part of the toolkit that developers -- and more often "citizen developers" -- need to build modern applications as they apply BPM best practices.

Indeed, originally deployed to improve operational efficiency and lower costs, BPM systems are now more frequently viewed as application development platforms where users can build applications that automate business processes and decisions.

THE INTERSECTION OF BPM AND DEVOPS

When viewed as application development platforms, requirements for BPM systems are tied to the use of development methodologies, particularly DevOps.

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Modern BPM systems must be compatible with the DevOps approach, as much any other software development platform, said Phil Simpson, senior principal product marketing manager for JBoss Middleware at Red Hat.

There are natural affinities between DevOps and BPM, added Charles King, principal analyst at Pund-IT in Hayward, Calif. DevOps aims to better integrate the all-too-often separate efforts of developers and operations professionals, while BPM focuses on enhancing business processes and workflows to address specific customer requirements or deliver broader benefits.

“While DevOps efforts are often inward-focused and BPM is typically focused outward, both can deliver substantial value to customers,” King noted. “That’s mainly because many of the core goals of DevOps, including dynamic planning, Lean and Agile techniques, continuous integration and automated testing, can all impact the timing and quality of processes that impact customers. Strong business rules are the tracks that projects run on and are essential to reaching the desired destination.”

Business rules have always been an important part of BPM since they help support the automation of business processes.

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Meanwhile, “Fast development by a combination team of business professionals and developers used in an iteration-based approach has proven to be very effective if team communication is high,” said Jim Sinur, vice president and research fellow at Aragon Research, noting the value of DevOps and Agile development for BPM environments.

“We have Agile development teams in our labs that help build segments of code in sprints and put them into actual use with customers to generate a real market feedback loop that validates our product-service-solution direction and delivers value to ourselves and customers during the innovation process,” said Ed Fox, vice president of network services at telecommunications provider MetTel in New York.

Fox said DevOps intersects with BPM at all points in his organization. “DevOps helps make the innovation process continuous, and BPM needs to be a living process that can dynamically evolve to support new and improved capabilities on-the-fly,” he said, “which is why BPM should be delivered in a SaaS model, as ours is.”

Norbert Siegers, head of IT channel solutions at Netherlands bank ABN

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AMRO, said his group has deployed BPM successfully as part of a multiyear digital transformation, moving from a monolithic system with waterfall-based development to a series of smaller services based on Agile and DevOps processes. “We are pursuing a more agile model and using the latest techniques for continuous integration and continuous delivery,” Siegers said.

DIGITAL PROCESS AUTOMATION

BPM is in the midst of a long shift toward a continuous delivery mindset, and players in the space have invested heavily toward that end since these vendors are particularly capable and experienced in managing tasks across systems, people and data sources, said Rob Koplowitz, an analyst with Forrester Research specializing in BPM. However, Forrester now uses the term “digital process automation” rather than BPM because the firm sees it as shifting to directly support digital transformation as organizations adopt new BPM best practices.

“Rules engines and advanced decision management are becoming increasingly common for managing the rules associated with complex processes,” Koplowitz added. “They offer greater flexibility and can often be

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maintained by business users.”

BPM TOOLS REQUIRE MORE COLLABORATION

BPM has existed as more of a historical enterprise software item than as something prevalent in the last several years of applications developed native to cloud computing. Agile software development evolved and grew into DevOps methodology variants initially enabled via configuration management tools, which enabled infrastructure as code, said Rhett Dillingham, cloud analyst, consultant and product leader at Moor Insights & Strategy. That has been further enabled of late by the emergence of Docker containers and technology layered from there -- container orchestration and the maturing of platform as a service -- that eases the development and operations role collaboration, including automation of workflow between them toward a more seamless progression and continuous integration and continuous deployment.

“Clarifying business rules and enacting them in process via workflow between functional teams is critical to DevOps success,” Dillingham said. “Individual efforts can mask gaps between development and operations teams during normal operation, but when the teams are working under the pressure and

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urgency of a business-impacting service incident, the gaps are often exposed. That shows up in delayed incident handling from a lag in escalations for additional resources and leadership input, tasks bouncing between teams from unclear responsibilities and delayed decision-making.”

Meanwhile, larger-scale DevOps transformations bring with them a need to coordinate the flow of information across tools and processes, said Mik Kersten, CEO and co-founder of Tasktop Technologies, which provides integrations to BPM platforms and a host of other development environments. Yet, BPM technologies have been useful in coordinating various systems, but they have not been commonly adopted for software development tools, he explained.

“The problem is that they are not tailored to the high rates of collaboration that need to happen for effective DevOps -- for example, ensuring that comments on tickets and code reviews flow instantly across teams and stakeholders,” Kersten said. “In order to apply the benefits that it provided for back-office systems to DevOps, we need to rethink BPM and rethink its principles to center around flow and feedback, not just business processes or tasks.”

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While business process management has traditionally focused on improving productivity and efficiency to help reduce costs, the trend today is geared more toward using BPM to drive digital transformation.

BPM is a systematic approach to improving a company's workflow in the face of constant changes, and those projects have usually been complex, resource-intensive and laborious. However, new BPM trends center on automating workflow software to facilitate the flow of business tasks and activities. These BPM trends include the addition of low-code application platforms, the use of artificial intelligence, and voice and conversational inputs.

"We actually use the term digital process automation rather than BPM because of the shifting technology trends that directly support digital transformation," said Rob Koplowitz, an analyst with Forrester Research.

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The primary driver for BPM is moving from cost reduction to focus on customer experience and digital transformation. In the process, enterprises will need to make back-office systems and processes accessible for digitization.

LOW-CODE IS THE WAY TO GO

“The first change we see is a shift to low-code development to support the greater number of processes required to achieve digital transformation,” Koplowitz said. “Low-code is faster and moves many development activities closer to business owners. The second [change] is a focus on user experience, including low-code mobile development. The third is rapid innovation, which shows up in many areas, but perhaps most interesting in new interfaces like voice and chat, machine learning, to extend more traditional analytics and integration of external cognitive services as new sources of expertise.”

Ed Fox, vice president of network services at telecommunications provider MetTel in New York, said he encourages a low-code development environment for business analysts and power users as a way to get apps built quickly as part of a BPM environment. He likes the idea of empowering “citizen developers.” But rather than employing a baked-in BPM platform with low-code

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development, MetTel uses its own homegrown BPM system. The company is working with Telestax, which provides a platform for web developers through its rapid service creation environment.

“It’s early, but we have recently begun working with Telestax to create open source-based real-time communications apps to hang on our BPM platform for ourselves and our customers,” Fox added.

MetTel first built its BPM platform for network management. Over the years, their customers wanted a better, more transparent way to run their networks, control telecommunications costs, and procure and manage inventory, among other things. So the MetTel Labs teams began to develop a unique customer portal and communications platform -- code-named “Bruin” -- to provide these capabilities and let customers see everything related to their network operations through a dashboard. This became the control mechanism for MetTel’s own network as well.

“Beyond lowering our costs by 30% through automation, streamlining and business intelligence,” Fox explained, “this platform helped us do things we simply couldn’t do before that led to better decision-making, greater

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capacity and reducing our network operating costs by one-third, all of which is pretty significant. Not to mention, many of our leading customers use it.” Most recently, the federal government, which calls the platform the “EIS Portal,” awarded MetTel as a winner of the 15-year, \$50 billion Enterprise Infrastructure Services contract.

AI AND THE BPM MAKEOVER

Meanwhile, Forrester’s Koplowitz said BPM is in the throes of an “extreme makeover,” in which artificial intelligence (AI) is being brought into the fold to enhance automation and help better serve customers. He argued that AI is being used in BPM in three key areas: Process optimization through machine learning, augmenting humans with new sources of cognitive expertise and deploying new user interfaces. He further argued that BPM systems have been good at automating structured processes, but AI technologies such as natural language processing and sentiment analysis can help to interpret intent from unstructured data sources.

Telecommunications and IT network management is all about automation and intelligence -- insights derived from analytics and AI to make the network

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more adaptable with greater capacity, lower costs and flexibility to support more advanced services -- Fox said. Essentially, the network is the foundation for digital transformation, he noted. And BPM will continue to improve the network to enable the support of expanding digital operations throughout the enterprise. "Our MetTel Labs teams are experimenting further ways of enhancing our BPM platform with artificial intelligence through the expanding use of bots and deeper applications such as IBM Watson," Fox said.

Meanwhile, Paul Daugherty, chief technology and innovation officer at Accenture, said, "We believe that AI is the most transformative technology since the dawn of the information age. Artificial intelligence and new forms of automation are giving us new ways to create agility inside business processes."

Amit Rajaram, director of Pega solutions at Telerx, said BPM trends have taken the technology far from where he was when he started 10 years ago with the title of director of BPM and workflow. "In the past few years," he observed, "BPM has evolved to take on many more nuances and facets, including things like advanced analytics, decisioning, AI, machine learning, natural language processing and enhanced styles of reporting. There are so many more

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things you can do with what was traditionally nothing more than a workflow optimization engine with bells and whistles. It's not just about automating tasks and reducing costs."

In addition, BPM vendors and end users are beginning to enable voice and chat interactions with business processes and the systems that manage them. Because of digital technologies, such as the internet of things, AI, machine learning, virtual assistants and conversational platforms, there is so much more information to tap into in real time, said Samantha Searle, a Gartner analyst specializing in BPM.

"Therefore, there are huge opportunities to design more intelligent processes that can take advantage of all this real-time information and analytics and have more automated decision-making," Searle explained. "So, there's an opportunity to design more important processes."

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TOM NOLLE

As applications get more componentized and developers plan more in terms of workflows that link components, business process management takes on an increasingly important role. Since containers are also growing in importance, understanding the relationship between the two is more critical than ever.

BPM helps define effective componentization and workflow strategies for container-based applications, and its tools can benefit from container hosting for local integration. But to get the most from container BPM, broaden your BPM system scope to your entire application base, and make container policies subservient to business policies.

BPM is the practice of defining and modeling business processes, normally as an aid to use IT efficiently. A business process diagram (BPD) is created. When combined with starting-event identification, it can be used to define business workflows that can be turned into componentization plans, computer integration and work steering. There are two pieces to BPM system support:

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The use of BPM to structure container deployments and the use of containers to host BPM tools.

It would be incorrect to say that containerization can't be done without BPM; most users deploy current applications into containers without BPM intermediation. However, it offers application teams the opportunity to align application structures, workflows and lifecycle management with the business processes that the applications support. That lets the teams make better deployment decisions, which clearly affects container use.

START WITH A DIAGRAM

A BPD is a good place to start a container plan. If applications and components are mapped onto such a diagram, it's easy to see the business dependencies for each element and to relate integration of IT workflows with business workflows. That shows the way components of applications relate to business processes, which in turn shows how they should be grouped for container deployment. Generally, applications and components that relate to the same business processes should be considered for grouping into pods or clusters and orchestrated as a whole.

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Users of Kubernetes, the popular Docker DevOps tool, have reported that BPDs make it easier to structure how Kubernetes deploys applications, making it more likely that application deployments will reflect the optimum relationship among components and facilitate application-to-application workflow integration. It's also possible to link a BPD to broader, departmentwide orchestration by using a higher-level DevOps or orchestrator tool or even using a business process execution language (BPEL).

More and more companies are using BPM as a means of integrating component workflows to make business applications composable without requiring actual programming. That extends the link between BPM and containers by placing BPM workflow and integration tools inside the application, hosted in application containers. There, the BPM application is inside the cluster or pod; in that position, it can manage workflows among components and organize the steps in applications without requiring that the internal components of the application be exposed.

Users are likely to find this tight level of BPM and container integration far easier if they work with a container platform and BPM toolkit designed to work together. Red Hat has been a leader in this space with its OpenShift and

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JBoss BPM suite and offers extensive application notes and examples on how to achieve optimum BPM and container integration. Dell, Hewlett Packard Enterprise, IBM, Microsoft and Oracle also offer container-integrated BPM, but their integration relies more on buyer practices to implement, and there are fewer examples offered. That's likely to change over time as the relationship between BPM and containers becomes clearer, which is likely to happen as container adoption grows.

Many BPM tools also include process management and monitoring elements that can be of great benefit to container users. BPM-specific vendors like Appian offer suites of BPM tools that provide for process management and some monitoring. Such tools can give users a view of the process-to-resource relationships within clusters and pods as well as a businesswide view across all resources, including those not yet -- or never-to-be -- containerized and public cloud resources.

DEFINE AND TRACK WORKFLOWS

The leading edge in BPM-container symbiosis may be represented by Box Relay, a product of a Box-IBM partnership. This BPM system and workflow

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management offering is designed for use by small groups and companies or even individuals. With Box Relay, you can define workflows, and everyone can track tasks and progress. The product could popularize BPM and facilitate the integration of business process knowledge with container deployment.

Integration of that knowledge is currently manual. Box Relay doesn't have a specific hook to something like Kubernetes to drive actual deployment of containers. It seems likely that Box, IBM or a competitor will soon create this connection. Also lacking is guidance on how "organizational" or "personal" BPM could be integrated across an entire business. If both these capabilities were offered, it could jump-start the use of BPM in container deployments and businesses overall.

That raises the biggest point about BPM and container relationships. Both BPM and containers are business tools, but BPM is more about business. Business processes and their support are the core justification for IT. Containers are a way of hosting applications and, logically, should be used within a BPM context. Tools like Box Relay may expand the scope of a BPM system and open its benefits to a broader range of businesses and organizations, and that expansion is important if containers are to be of broad

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benefit to the business as well.

The convergence of BPM and containers is a business convergence -- the combination of Agile development, shadow IT, digital transformation and other trends aimed at making IT more responsive to business needs. Those factors are growing in importance, so their combined effect is growing, too. Certainly that will influence how businesses use IT and how IT uses resources.