

# Optimize workloads to achieve success with cloud and big data

*Intelligent, integrated, cloud-enabled workload automation can improve  
agility and efficiency*



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## Introduction

As organizations grow and expand, the amount of data they generate also increases exponentially. This is especially true on today's smarter planet, where instrumented, interconnected and intelligent businesses collect, process, use and store more information than ever before. In addition, the roles of big data and business analytics are becoming more important to business. These changes, along with the trend toward cloud-based services and virtual servers, are leading to increasingly complex, heterogeneous infrastructures. And all these different platforms and varied business operations require new applications. The result? The creation of numerous workloads in separate siloes, which are difficult to manage not only because of their complexity and because of IT resource constraints, but also because they require human intervention. With up to thousands of applications and services running on any given day, IT administrators can no longer handle them all manually or with poor automation.

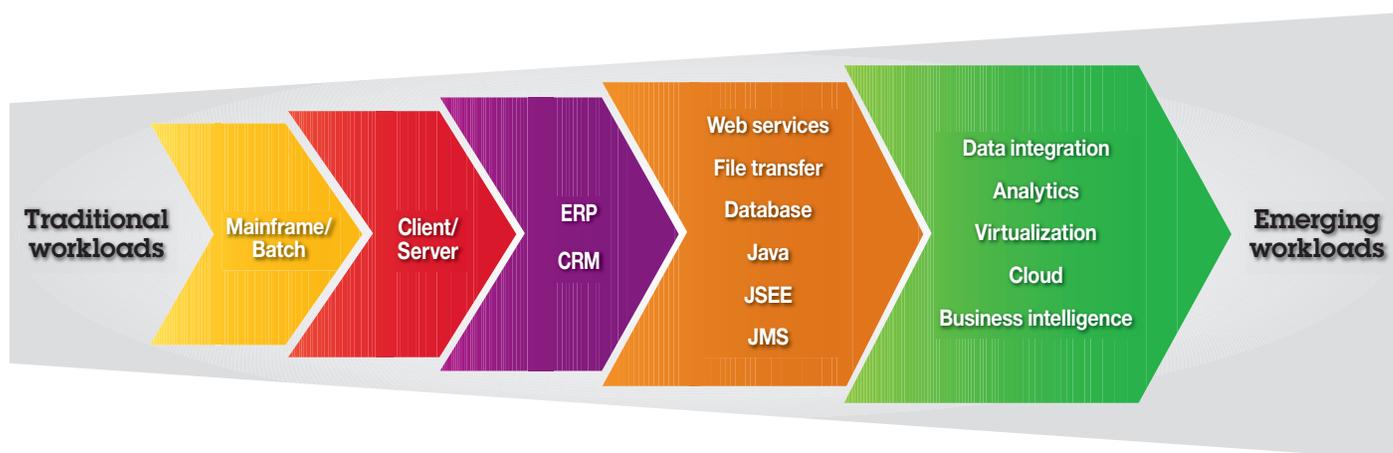
These emerging issues pose new and complicated challenges to organizations. They are driving IT organizations to shift from traditional job scheduling to more dynamic and policy-driven workload automation—which offers management functionality not available through job scheduling alone. In fact, workload automation itself is shifting toward having more of a cloud presence to provide greater flexibility and intelligence.

Managing all of these factors efficiently, while maintaining optimum capacity performance, requires new workload automation strategies. Organizations with such demanding environments need a way to manage and automate workloads across the entire infrastructure—and do it with minimal overhead and human intervention. They need to control all their different applications from a single, centralized system.

To thrive in this new era of workload automation—largely encouraged by the proliferation of cloud computing—organizations need a solution that can actually improve the efficiency of workload automation by integrating process and automation capabilities. Organizations must be able to adapt quickly to changing business needs in order to manage increasing (or decreasing) demand for systems and data.

This white paper discusses using modern workload automation as a strategy for managing unattended workloads efficiently and for managing applications agnostically in complex environments. It also discusses leveraging the elastic capabilities of the cloud, which enables organizations to expand or shrink their resource investment levels in real time based on changing business needs. This elasticity also enables workload automation to act as the backbone of modern business analytics—including big data analytics—and to integrate with other automation solutions to ensure availability at all times.

## The evolution of workload management



### The goal: Unify automation solutions to boost visibility, ease management

#### Challenge

In many organizations, the automation process tends not to be integrated, but siloed. For example, a cloud is typically separated from other systems, contributing to management complexity. Given the rate of growth in today's organizations, the traditional, manual approach to workload management and this siloed approach to application management are no longer feasible.

To meet this challenge, organizations need clear visibility across complex, heterogeneous, disparate infrastructures in order to see and understand their business in real time. This is particularly critical in cloud environments, where knowledge of business logic and data is necessary to make an application successful. Organizations also must be able to transform and adapt while limiting risk and cost to the business.

#### Solution

An efficient workload automation solution can help organizations unify separated processes, bringing together systems and applications. It should be designed with unified capabilities in mind, presenting workload and orchestration as one platform—and providing central management for end-to-end workloads across different geographies and business units.

The right workload automation solution should enable development and operations teams to work together more effectively. Using workload automation, IT administrators can create policies to monitor performance thresholds for certain services. They can look across events and see when metrics are below acceptable levels, then automate corrective responses to those events. In addition, workload automation enables them to leverage dynamic scheduling capabilities, bringing greater efficiency and agility to the organization. These users should seek a workload automation solution that features a graphical programming interface the teams can share, to help resolve issues related to adequately powering locally owned servers in the data center.

A robust workload automation solution should integrate cloud capabilities so that users can easily request, deploy, monitor and manage cloud computing services. Cloud integration enables better provisioning and flexibility without degrading level of control or robustness of features. And to help control costs—while more closely aligning business with the cloud computing model—organizations should seek a solution that offers per-job pricing. This pricing metric should allow for consumption-based pricing with the flexibility to grow as the demands of business and technology change.

### **The goal: Use multiplatform integration, big data to advance business**

#### **Challenge**

In line with the rapid growth occurring within organizations, enormous amounts of data also are being generated. To handle this influx of data, IT environments often comprise many different platforms and business operations. Organizations need the ability to manage multiple platforms, environments and applications with one tool—from a centralized, single point of management and control.

The growing demand for big data and business analytics is generating the workloads of the next generation. Big data is more than simply an extremely large amount of data; it has become an opportunity to gain insights into new and emerging types of data and content, to make a business more agile and to gain answers that were previously considered beyond reach. But organizations need a practical way to harvest this great opportunity. They need to update their long-established business processes and find ways to embed big data analysis into their new decision processes.

Not surprisingly, the size and complexity of these data formats, plus the speed of delivery, is quickly exceeding traditional data management capabilities. Organizations need new ways just to manage the volume, much less to transform big data into usable

data. Automation can enable IT operations to efficiently integrate and manage key resources in their environments for improved data quality and reporting.<sup>1</sup>

#### **Solution**

Effective workload automation solutions integrate with multiple platforms and applications so organizations can get the most out of the IT environments they already have—and so they can easily add capabilities as needed.

And because organizations need to run big data analytics without negatively affecting their regular, day-to-day workloads, the right workload automation solution should be designed to securely and efficiently manage even the most complex big data—and to generate robust business analytics. It should enable users to easily create big data workflows so IT operations can reduce or eliminate custom scripting or manual intervention that has traditionally been necessary to execute these processes.<sup>1</sup> And it should unify analytics and reporting solutions such as IBM® InfoSphere® DataStage®, IBM Cognos® and third-party applications such as Informatica with global processes in a managed approach that requires little intervention.

Today's organizations need a solution that can automate workloads across both IBM System z® and distributed platforms to provide a highly scalable, reliable workload automation backbone. The solution should minimize idle time and improve throughput by automatically processing heterogeneous workloads according to business policies.

### **The goal: Automate processes to boost innovation and accessibility**

#### **Challenge**

Apart from the operational benefits delivered to organizations by workload automation, there are development benefits, as well. Many organizations need help securing and guaranteeing their application development lifecycle. They can reap huge benefits from workload automation, since application development

organizations spend large amounts of time and effort coping with systems management issues such as failover, platform optimization or client server connections—rather than focusing on their core business values.

Leveraging automation to integrate the development of new applications into a lifecycle is much more precise in terms of the processes needed to get new applications into production and those needed to efficiently integrate with existing production systems. It is critical that organizations be able to easily migrate their workloads to new, automated platforms, while retaining the functional capabilities of their current systems.

Organizations need ways to make these processes more described, more stable and more automated. They need to empower much greater efficiency in the development phase of the enterprise lifecycle. More defined workloads and purer processes can free developers to focus on how to better evolve processes and encourage greater innovation for new applications.

### **Solution**

Once again, workload automation can help solve these challenges, and the right solution can even optimize processes in the cloud. Cloud environments deliver on-demand self-service capabilities that enable users to simply and automatically request server time or application access, so self-service is fundamental to cloud efficiency. Organizations should choose a workload automation solution with a self-service catalog that addresses all layers of the cloud and helps even less-technical users get the most out of optimized automation capabilities.

After they have implemented workload automation, organizations should then remove single points of failure from their infrastructures by securing their central servers with a high-availability solution. Leveraging a powerful combination of workload automation and system automation can help maintain the quality of their services and processes in the absence of manual intervention. To gain better availability and protection, organizations should seek a workload automation solution that

integrates with IBM Tivoli® System Automation. Not only does Tivoli System Automation have built-in default policies to help protect critical servers, it can further secure workloads by making them dynamic and rerouting them as necessary.

For organizations already using workload automation, but who want to upgrade to a more robust workload automation solution, they should seek a solution that can simulate the functionalities of their current system. This feature can greatly simplify the migration process and eliminate a lot of manual effort.

### **Conclusion**

The future of technology clearly includes the flexibility of cloud computing and the optimization and automation of workloads. In response to a new era of workload automation ushered in by the proliferation of cloud computing, IBM SmartCloud™ Workload Automation combines the capabilities of IBM Tivoli Workload Scheduler and IBM Tivoli Workload Scheduler for Applications to provide a solution that can clearly steer your organization toward more efficient workload automation.

Ideally equipped to address the challenges discussed in this white paper, IBM SmartCloud Workload Automation offers a sophisticated, cloud-enabled solution that unifies disparate applications and business processes to help organizations achieve superior scalability, efficiency and availability. Deploying IBM SmartCloud Workload Automation on top of business infrastructure and platform components gives organizations a production-ready, dynamic application that not only leverages the flexibility and scalability of cloud computing, but provides an important step toward the organization becoming more fluid and agile.

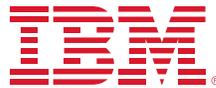
IBM SmartCloud Workload Automation is designed to integrate—and improve—process and automation capabilities. It leverages the elasticity of the cloud in order to expand or shrink investment levels in real time, based on changing business needs. It provides a dynamic environment for running

unattended workloads and applications in the cloud. It delivers scalability and performance to help minimize idle time, improve throughput and ensure that workloads are managed efficiently and reliably. It helps turn big data into usable data, delivering sophisticated business analytics without slowing down other workloads. It provides a centralized console that unifies all workloads and presents them as one, increasing visibility of the entire infrastructure, and also provides rich application programming interfaces (APIs) that enable business teams to own their domains down to the smallest detail. And with its end-to-end view of the infrastructure, IBM SmartCloud Workload Automation can enable IT to better allocate resources, optimize underutilized assets and ensure the proper functioning of all enterprise operations. Finally, IBM SmartCloud Workload Automation significantly eases the migration process for organizations upgrading from other workload automation solutions, with its ability to simulate the functional features of competitor solutions.

Not only can IBM SmartCloud Workload Automation host critical business processes, it can fully optimize and secure them. This solution is designed to move your organization into the future by increasing your agility in a constantly changing marketplace.

### For more information

To learn more about IBM SmartCloud Workload Automation, contact your IBM representative or IBM Business Partner, or visit: [ibm.com/software/products/us/en/smarworkauto/](http://ibm.com/software/products/us/en/smarworkauto/)



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<sup>1</sup> Colin Beasty, "Big Data Won't Be Very Big Without Real-Time Automation," *Database Trends and Applications*, May 9, 2012. Accessed November 8, 2012. <http://www.dbta.com/Articles/Editorial/Trends-and-Applications/Big-Data-Wont-Be-Very-Big-Without-Real-Time-Automation-82517.aspx>



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