



# CLOUD COMPUTING IN PERSPECTIVE

By Kia Behnia, Chief Technology Officer, BMC Software

Many CIOs recognize the power of cloud computing and are looking to implement the technology in their own IT realms. But with all the noise in the market about cloud computing, how do you know where to begin? By understanding the underlying service-related delivery requirements that are needed, you can successfully take full advantage of cloud computing technology for your enterprise so that you can improve service delivery to the business. Here are some questions to help you get the process started:

- > How do I determine and implement the right cloud computing strategy for my organization?
- > What services should I offer via the cloud to my customers?
- > Which services should I source externally versus build internally?
- > How are my service levels being managed?
- > How do I protect my investment now and in the future?
- > How can I manage the cloud environment?

## Enabling Technologies

Cloud computing is evolutionary and is enabled by a number of existing technologies, such as virtualization, automation, and self-service portals with an integrated service catalog. With cloud computing, dynamically scalable and often virtualized resources are provided as a service over the Internet. Users don't need to have knowledge of, expertise in, or control over the technology infrastructure in the "cloud" that supports them. On the IT side, cloud computing can increase the speed

of IT responsiveness to business needs, while reducing the cost and use of the infrastructure, platforms, and applications.

The technological power of cloud computing has been around for awhile, evolving from the maturing of several different IT capabilities over the past few years. These include the "greening" of the data center, hosted computing environments, unified blade server and network technology, and virtualized data centers.

## Which Cloud Is Right for Your Organization?

There are three main types of cloud computing environments: public, private, and hybrid. *Public clouds* are attractive to organizations that don't want to own or maintain their own infrastructure or applications. You're essentially renting a virtual machine by the hour, eliminating capital expenses within the IT organization.



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If you have applications or data that are confidential or very proprietary, you may not want to risk putting that information in the public cloud until you are comfortable that it is safe. A public cloud may not be able to meet the stringent regulatory compliance requirements, such as the Health Insurance Portability and Accountability Act (HIPAA) or Payment Card Industry (PCI) for your organi-

zation, and its public nature could lead to governance issues. But with the right solutions in place focusing on integrated IT Infrastructure Library® (ITIL®) processes such as configuration management, you could track and audit which services are hosted in the cloud and automate governance of these workloads.

Some enterprises are building their own internal or *private cloud*, in order to improve IT responsiveness to business needs and drive down costs. Private clouds are also appealing to the enterprise or company looking for a very elastic, dynamic computing or storage capacity. With a private cloud, a business service that needs additional compute or storage resources can dynamically provision for it. The benefit of a private cloud is that it enables an organization to manage the infrastructure and have more control. Doing so can put the burden of creating a secure, scalable, compliant cloud on the shoulders of IT organizations. Any gains associated with better utilization and lower capital expenditures could be wiped out or significantly reduced by the increase in administrative costs and other operating expenditures. However, by using comprehensive “cloud” service management solutions, many organizations are able to address these challenges.

Other enterprises may choose to implement a *hybrid cloud*, an environment consisting of multiple internal and/or external providers. The hybrid cloud offers the opportunity for providing the cost-saving benefits of public cloud services with some of the control and compliance

BMC is working with IT organizations and service providers to bring the same level of service management capabilities, automation, and control expected from their physical and virtual environments to their cloud initiatives. These organizations are finding that the core capabilities found in BSM — including Service Automation, Service Support, Service Assurance, Service Optimization, and the Atrium platform — can be used to achieve the following results:

- » Establish private clouds as the next generation of automated and virtualized data centers
- » Establish a unified, actionable “Service Catalog” for internal and external IT services, associated service-level agreements and costs
- » Set and manage tiered service levels for a diverse cloud customer set
- » Provide self-service request and fulfillment of cloud resources and services to users
- » Automate the orchestration, provisioning, service changes, monitoring, and management of cloud resources
- » Automate workload management, including real-time provisioning of virtual machines
- » Accurately forecast and track the cost of delivering services in the cloud
- » Maintain a “single source of truth” in a configuration management database (CMDB) even as the cloud environment evolves

required for private clouds. For instance, the enterprise may have a private cloud, as well as a relationship with a cloud resource provider that provides additional storage or infrastructure computing power. When peak demand is increasing, the IT organization may not own the physical infrastructure to allocate for this demand, but may instead leverage a relationship with this resource provider to pay for the needed resources for a given period of time.

## Your Cloud: New Technology, Same Management Requirements

In an environment where the ability to change and adapt is critical to business success, how does IT maintain control to ensure the required quality of service and still deliver the responsiveness and cost savings promised by cloud computing? The answer is the same as it is for your physical and virtual infrastructure: careful planning and choosing tools that provide best-practices service level management. Committing to a strategic cloud initiative for your IT organization requires a clear understanding of the value you will receive, the resources required, and the most effective management approach.

The evolution of cloud computing has provided technology that has matured beyond simply providing a level of service to the business. For instance, the Amazon Elastic Compute Cloud (Amazon EC2) is a web service that provides resizable compute capacity in the cloud. BMC Software recently announced it can optimize hybrid IT infrastructure deployments by integrating automated provisioning across on-premises resources with external infrastructure such as the Amazon EC2, enabling customers to holistically manage physical, virtual, and cloud environments. This helps companies to further reduce cost and complexity by using an integrated and unified set of management solutions.

## Why Business Service Management Is Critical to Managing Your Cloud

Whether you decide to implement a public, private, or hybrid cloud strategy for your IT organization, you should apply the same level of service management capabilities to the cloud as you do for your physical and virtual

infrastructure. All three types of cloud computing models need strong and rigorous IT processes to support service management objectives.

BMC's Business Service Management (BSM) solutions for Cloud Computing™ are helping enterprises and service providers realize the potential of cloud computing. BSM is a comprehensive approach and unified platform for running IT. Fundamental to what "makes" a cloud is very often the management technology. The enabling underlying infrastructure of a cloud solution is often built on top of a commodity server, a layer of virtualization technology, and then on top of that is the management capability.

This capability also helps to maintain the control that makes the cloud "real." BSM solutions, which are so critical to the management of the physical infrastructure, can deliver the same value for your cloud computing model. Through an integrated set of solutions, organizations can provide a set of IT services with the automated set of processes to manage the lifecycle of these applications and virtual systems — regardless of whether they are hosted on premise or off premise. This automation is key

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to enabling the high level of dynamism that is fundamental and essential to the success of cloud computing. This capability also helps to maintain the control necessary to ensure high-quality service delivery and strict regulatory compliance.

IT organizations can now extend their internal data centers to external clouds, such as Amazon EC2, via unified, integrated BSM management solutions. Computing resources can be requested through an integrated self-service portal.



The requests are tracked through an IT Infrastructure Library® (ITIL®)-compliant change management system and automatically provisioned and configured in minutes. This self-service interface also supports service de-provisioning and service change requests.

The need for a strong management focus is increasingly important as enterprise organizations leverage external cloud resources to augment their existing infrastructures. A BSM approach can enable organizations to request, orchestrate, and provision capacity across their existing internal IT resources and clouds in minutes, instead of weeks.

As you pursue a cloud initiative for your own organization, remember that the best practices based on BSM solutions to manage your physical infrastructure are just as critical in managing your cloud computing environment. They can help you meet your IT and business objectives and drastically reduce the time to change infrastructure and services in response to demand. You can move ongoing IT demand and consumption to a variable cost structure, and take a more precise, commoditized approach to service sourcing. The sky is the limit.

For information about BMC Software solutions for cloud computing, visit [www.bmc.com/cloud](http://www.bmc.com/cloud).

#### ABOUT THE AUTHOR

Kia Behnia, Chief Technology Officer for BMC, is responsible for product strategy and technology direction. He was previously Chief Corporate Architect responsible for leading the design of the service-enabling architecture for Business Service Management from BMC. He also has served as CTO for the change and configuration products at BMC, and CTO for Marimba, Inc., which was acquired by BMC. Prior to joining Marimba, he served as a senior member of the technical team for Tivoli Systems, Inc. Behnia has more than 15 years of experience in the management of distributed systems and databases. He holds a bachelor's degree in computer science from the University of California at Davis.



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