BMC Cloud Operations Management

Confidently and cost-effectively run public, private, and hybrid clouds — regardless of your choice of cloud management platform. Deliver services with the speed and quality your end users expect by leveraging analytics-driven intelligence to maximize visibility and control of your cloud and cloud services.

Key Benefits

- **Deliver the speed and service quality that users expect** by anticipating and solving capacity and performance issues earlier and faster
- **Improve efficiency, minimize risk of disruption, and reduce cost of cloud services delivery** by continuously right-sizing capacity of individual services and the entire cloud, and by optimizing your monitoring and management processes to run a reliable production cloud along with your traditional IT
- **Justify your cloud investments** by accurately forecasting, measuring usage, and charging for cloud services

Business challenge

There's a myth that clouds just appear and magically run themselves — and that standardization and automation will prevent things from going wrong and ensure the cloud is optimized. However, that's not the case. Running a private, public, or hybrid cloud isn't any easier for IT operations than managing traditional infrastructures — it's just different. Due to shared resources and intertwined layers often involving multiple cloud management platforms, hypervisors, and providers, clouds are even bigger and more complex. They are also much more dynamic, with services growing and shrinking constantly and changes happening quickly, often without IT involvement. Not surprisingly, traditional operations management tools and human-driven processes cannot keep up.

IT must embrace the fact that the cloud is a completely different monitoring and management environment. For starters, it's a challenge to know what's running in the cloud — much less how well it's running. When problems do occur, root cause is harder to find. When cloud services are deployed, preventing and diagnosing problems across the entire cloud service and software stack is almost impossible. As a result, IT often increases cloud capacity to fix things, which can lead to escalating costs. Left unmanaged, cloud service levels quickly become unacceptable to end users.

To deliver on the promise of the cloud, IT needs to find more effective ways to proactively identify issues that may impact cloud services, quickly prioritize and isolate the cause of those issues, and trigger the right corrective actions.

The BMC solution

BMC Cloud Operations Management uses analytics to maximize your visibility into the cloud, giving you the intelligence you need to control the services running in that cloud — no matter which cloud management platform you run. Not only does the solution provide out-of-the-box support for BMC Cloud Lifecycle Management and VMware vCloud Director, it also supports OpenStack, CloudStack, and other cloud management platforms through an open API and metadata-driven user interface.

Figure 1. Gain analytics-driven visibility and control of your cloud.

BMC Cloud Operations Management helps you confidently and cost-effectively run even the most diverse public, private, and hybrid clouds by delivering value through three key areas: Services, Analytics, and Workflow.

Services

BMC Cloud Operations Management collects and analyzes comprehensive cloud service resource consumption, performance, and availability data spanning private, public, and hybrid clouds. It then displays actionable views for performance and capacity that help IT identify and prioritize issues, drill down, and take action across the full spectrum of cloud services (application and infrastructure) and shared local and remote resources (storage, network, and compute) for multiple cloud stacks.

Key BMC integrations

- BMC Cloud Lifecycle Management
- BMC End User Experience Management
- BMC Atrium Orchestrator

Real-world results

- **Industry-leading cloud services and collaboration vendor** leverages automated chargeback to evaluate the cost of delivering cloud services against the revenue generated by those services.
- **HCL** relies on analytics to manage its physical, virtual, private, and public Amazon (AWS) cloud environments, managing over 100,000 servers.
- **Leading Australian cloud services provider** quickly provisions and continuously monitors the performance of its IT environment, as well as rapidly adjusts and otherwise scales its server environment based on business requirements.
- **Supply chain management vendor** rapidly deploys new applications into the cloud, while ensuring service levels for all cloud services with predictive capacity planning, automated provisioning, and cloud service monitoring from the end-user to the infrastructure.
- **Telecom provider** realized a 30 percent saving on service delivery costs by providing an end-to-end automated lifecycle for planning, provisioning, operating, governing, administering, and maintaining reliable cloud-based services to its external customers.

- **Full-stack cloud monitoring** provides real-time visibility into the performance of your private cloud managed by multiple cloud stacks (BMC Cloud Lifecycle Management, VMware vCloud Director, and more), public cloud (Amazon Web Services, Salesforce.com, Microsoft Azure), converged infrastructure (VCE Vblock), network (Cisco®, Citrix, and more), and storage (Dell, EMC, IBM®, NetApp, and more); as well as into your mainframe and legacy infrastructure and applications.
- **Real-time, real-user, and application performance management** lets you manage the performance of any user, on any network path, using application and services hosted in public, private, and hybrid clouds, including those deployed on Akamai's application delivery network, as well as hybrid or fully cloud-based deployments in Amazon EC2. The solution can also include user-centric problem detection and isolation with deep diagnostics for on-premise and cloud-based applications.

Figure 2. Gain real-time insight into the health of cloud services, as well as into shared local and remote resources for multiple cloud stacks

- **Cloud panorama** lets you assess the real-time health of all cloud services and shared cloud resources for multiple cloud stacks — factoring in end-user and application performance, configuration changes, and capacity alerts. As a result, you have all the information you need to proactively find and fix performance and capacity issues in large, complex, cloud environments.
- **Cloud capacity views** provide unique insights into both current and future capacity and potential saturation of cloud containers (such as PODs, network containers, compute and storage pools, clusters, and hosts) so you can proactively manage your cloud environment and effectively plan for future capacity requirements. Cloud capacity views support clouds for vSphere and Citrix Xen managed by BMC Cloud Lifecycle Management out-of-the-box. Additional capacity views support a wide range of compute and storage technologies, including Citrix Xen, EMC, HP, Hyper-V, IBM AIX®, KVM, Microsoft, NetApp, Oracle®/Sun Solaris, vSphere, and more.

Unlike competitive products, BMC Cloud Operations Management provides actionable views driven by analytics, so you can see — and understand — what's really going on in your cloud environment and take appropriate actions. The solution supports the widest range of cloud technologies — from end users and applications down through the cloud and virtual layers to the physical infrastructure (including the mainframe) — regardless of where and by which vendor the infrastructure is provided.

Analytics

In the cloud, analytics are absolutely essential. When problems appear, you simply can't sift through all cloud data manually to determine which performance, availability, or capacity issues are important — much less identify their root cause. Without analytics, you risk wasting valuable time on unimportant problems, treating symptoms instead of the cause, spending way too much money on under-utilized resources, and ultimately, failing to deliver fast and reliable cloud services to end users.

BMC Cloud Operations Management gives you analytics-driven intelligence to maximize visibility and control of your cloud and cloud services. Market-proven capacity and performance analytics enable you to predict potential risks, proactively detect issues, and accurately isolate their cause. These analytics provide the foundation for a comprehensive view of the health of your cloud, enabling you to identify hot spots and potential resource optimization opportunities. They also

Analyst Perspective

"BMC's integrated approach to cloud life-cycle management and cloud operations management enables IT organizations to more cost-effectively deliver on the promise of the cloud, helping to provide end users and customers with the speed and service quality they expect from cloud-based applications and services."

IDC, Tim Grieser, Program VP, Enterprise System Mgmt Software

empower you to intelligently automate the steps to add, move, recover, or replace resources — or modify applications — as needed in a dynamic and elastic environment.

Unlike competitive products, BMC Cloud Operations Management includes analytics that are specifically designed for the cloud — regardless of whether you use BMC Cloud Lifecycle Management or VMware vCloud Director as your cloud management platform — and that truly understand the capacity and performance behavior of pooled virtual and cloud resources.

- **Cloud capacity analytics** enable you to analyze capacity across compute (physical, virtual, and cloud), database, storage, network, and any other resource, while also incorporating key business performance metrics. You can analyze cloud pods, network containers, and compute and resource pools to intelligently plan your cloud and continuously optimize cloud resources to meet your service level targets.
  - **Capacity analytics** identify over or under-provisioned resources (compute, storage, and network), automatically predict and provide notifications on potential saturation of cloud resources, and enable simulation of optimal workload allocation, resource reconfiguration, and optimization by means of guided workflows.
  - **Capacity-aware placement advice** provides real-time recommendations for placement of new workloads on any cloud managed by BMC Cloud Lifecycle Management — based on available and forecasted capacity. As a result, you will achieve higher utilization and better performance from your cloud compared to traditional round-robin methods.
- **Cloud performance analytics** enable you to proactively detect resource pool decay — and avoid outage storms caused by cascading events — by providing you with proactive notifications of potential performance and availability issues.
  - **Patented behavior-learning analytics** provide continuous visibility into problems by learning the behavioral and performance trends of each monitored cloud service and related shared cloud resources, continuously capturing critical diagnostic data necessary for rapid problem isolation, and alerting IT to only those potential issues requiring action. As such, they eliminate up to 90 percent of false events and capture critical events missed by traditional threshold-based monitoring tools.
  - **Automated, high-precision, root cause analytics** sift through and correlate millions of performance, availability, capacity, change, and business data points and events to isolate the most likely cause of an issue, further speeding mean time to repair (MTTR) — without requiring guesswork or expensive subject matter experts. As such, they eliminate finger-pointing and manual problem solving efforts by as much as 75 percent.
  - **Real-time service impact analytics** automatically correlate events to determine which, if any, business services are being impacted. They also leverage business information, such as cost and service level, to properly prioritize issues, ensuring that you focus on finding and fixing issues that are important to the business. As a result, they enable you to identify service-impacting issues up to 95 percent faster.

With combined capacity and cloud performance analytics, you will better understand how shared local and remote resources are performing — and how those resources affect overall cloud service performance — now and in the future.

Workflow

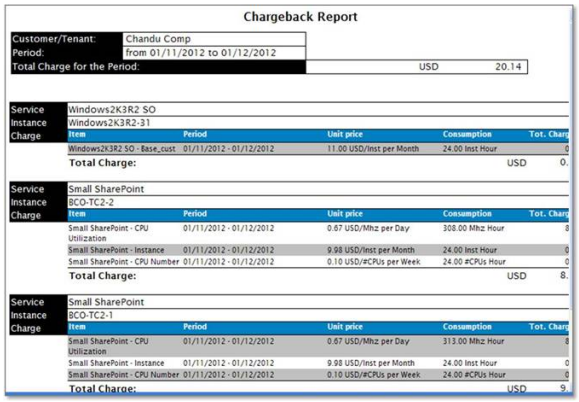
BMC Cloud Operations Management includes analytics-driven workflows that trigger intelligent actions — without the need for human intervention. Out-of-the-box integrations across the BMC portfolio enable automated workflows orchestrated by BMC Atrium Orchestrator. Typical workflows, all of which support the cloud management platform of your choice, include:

- **Monitoring cloud services as soon as they are deployed**. Automate the process of packaging, deploying, and maintaining the correct monitors on the correct monitored assets for infrastructure and applications, including end users, with policy-based deployment (when combined with BMC

Cloud Lifecycle Management) and configuration of full-stack monitoring.

» **Dynamically allocating and adjusting cloud capacity.** Continuously optimize the cloud for performance and utilization by optimally adjusting and allocating new workloads according to compute and storage requirements based on capacity-aware placement advice.

» **Enabling automated chargeback reporting**. Automatically generate chargeback reports at the tenant and service level, based on both allocation and utilization cost models.



Chargeback Report

Customer/Tenant:	Chandu Comp
Period:	from 01/11/2012 to 01/12/2012
Total Charge for the Period:	USD 20.14

Service Instance Charge	Item	Period	Unit price	Consumption	Tot. Charg
Windows2K3R2 SO					
Windows2K3R2-31					
	Windows2K3R2 SO - Base_cust	01/11/2012 - 01/12/2012	11.00 USD/Inst per Month	24.00 Inst Hour	0
	Total Charge:			USD	0.
Small SharePoint					
BCO-TC2-2					
	Small SharePoint - CPU Utilization	01/11/2012 - 01/12/2012	0.67 USD/Mhz per Day	308.00 Mhz Hour	8
	Small SharePoint - Instance	01/11/2012 - 01/12/2012	9.98 USD/Inst per Month	24.00 Inst Hour	0
	Small SharePoint - CPU Number	01/11/2012 - 01/12/2012	0.10 USD/#CPUs per Week	24.00 #CPUs Hour	0
	Total Charge:			USD	8.
Small SharePoint					
BCO-TC2-1					
	Small SharePoint - CPU Utilization	01/11/2012 - 01/12/2012	0.67 USD/Mhz per Day	313.00 Mhz Hour	8
	Small SharePoint - Instance	01/11/2012 - 01/12/2012	9.98 USD/Inst per Month	24.00 Inst Hour	0
	Small SharePoint - CPU Number	01/11/2012 - 01/12/2012	0.10 USD/#CPUs per Week	24.00 #CPUs Hour	0
	Total Charge:			USD	9.

Figure 3. Accurately measure and charge for cloud resource consumption with automated chargeback reporting.

» **Automating triage and repair.** Leverage a wide array of pre-packaged triage and remediation workflows to easily automate incident and change management processes with the BMC Remedy IT Service Management Suite, and to automate configuration and change management processes with the BMC BladeLogic Automation Suite. Customize workflows to integrate with third-party management tools and meet your unique requirements.

BMC Cloud Operations Management enables intelligent analytics-driven workflows so you can initiate self-healing and human-initiated actions appropriate to your operational and business needs.

Run a cloud your business can count on

Capacity, performance, and availability issues hurt customer satisfaction and loyalty. They also drive up your costs for service delivery and impact revenue. BMC can help you cost-effectively deliver the speed and reliability your users expect — whether you are managing public, private, or hybrid cloud-based applications and services.

Using BMC Cloud Operations Management, you will:

» **Deliver the speed and service quality that users expect** by anticipating and solving capacity and performance issues earlier and faster

» **Improve efficiency, minimize risk of disruption, and reduce cost of cloud services delivery** by continuously right-sizing capacity of individual services and the entire cloud, and optimizing your monitoring and management processes to run a reliable production cloud along with your traditional IT

» **Justify your cloud investments** by accurately forecasting, measuring usage, and charging for cloud services

Plan, build, and run your cloud

BMC Cloud Operations Management plays a key role in BMC's overarching cloud computing management strategy. With BMC Cloud Computing Management, you can bring IT and its stakeholders together with a cloud management solution that unites expectations and realities. Across the cloud lifecycle, you'll deliver highly reliable cloud services with more agility, savings, flexibility, and alignment.

For More Information

To learn more about BMC Cloud Operations Management, please visit www.bmc.com/products/cloud-operations/cloud-operations-management.html.

To learn more about Cloud Computing Management solutions from BMC, please visit http://www.bmc.com/solutions/cloud-computing/cloud-computing-management.

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