BMC BladeLogic for Cisco Unified Computing System: Reduce Operating Costs with Automated Service Provisioning and Tightly Coupled Device and System Management

What You Will Learn

Now, more than ever, IT must be more responsive to the business with significantly lower cost. BMC BladeLogic for Cisco® Unified Computing System delivers a radically more efficient x86 computing and network solution that increases the value of crucial technology and business capabilities for the enterprise by offering virtualization, simplified management operations, and reduced total cost of ownership (TCO). As this document discusses, together, BMC BladeLogic and the Cisco Unified Computing System provide an integrated architecture that connects the infrastructure components in context with the provisioning, management and operation of the operating systems and applications they support. The result is a computing system that is dramatically simpler to maintain and operate, enabling enterprises to perform business processes much more efficiently and with uncompromising availability and performance.

BMC BladeLogic provides the capability to configure entire business services to deliver complete services to the business faster and with lower risk and cost. The solution helps ensure that all changes meet security, operational, and regulatory policies and reduces the risk of change in a highly complex environment while reducing the effort related to configuration change and the time required to roll out production applications.

Challenge

The needs of the modern data center require a more agile and flexible hardware and software infrastructure than provided by previous and current generation platforms. For instance, virtualized platforms have quickly become the default for new data center server needs and offer users greater agility at a much lower cost than traditional single-use systems. To increase the benefits of virtualization, from both cost and agility perspectives, IT departments have turned to blade servers as the underlying infrastructure to support their virtualization initiatives. In fact, in the December 2008 report “Blade Servers in the Data Center,” Jeffrey Hewitt of Gartner indicates that 49 percent of respondents are implementing blade servers and virtualization technologies together.

While today’s blade servers offer customers greater density and increased agility than traditional rack systems, they are more limited when it comes to balancing server workloads across them. This limitation is due primarily to the need to dedicate specific hardware configurations (such as I/O) to achieve optimization for certain workloads, including virtualized and data-intensive applications. This inflexibility can negate the agility that blade architectures provide, since a change in workload requirements can often require physical changes to the blade systems supporting them. Previous-generation architectures were not designed to support this type of reconfigurability at the hardware level.

In addition, today’s platforms remain independent components of a very complex system held together by the IT staff. This lack of integration between critical system components reduces the overall cost benefits because basic administration requires highly skilled resources to manage the complexity and coordinate activities across various disciplines.

BMC BladeLogic for Cisco Unified Computing System integrates with and builds on the Cisco Unified Computing System Manager to unify the Cisco computing infrastructure and provide the first architecture designed to cohesively merge device and system management capabilities. Together BMC BladeLogic and the Cisco Unified Computing System provide an integrated architecture that connects infrastructure components such as network, compute, and virtualization with management and automation, including the applications they support. The resulting system, consisting of virtualized hardware, software, and management, can map workload requirements in context to their required virtual and physical resources. This capability produces an extremely responsive computing platform with a powerful yet flexible management approach.

Business Benefits

BMC BladeLogic for Cisco Unified Computing System provides a computing platform that is dramatically more efficient to maintain and operate than the traditional blade system, enabling enterprises to deliver business services much more effectively and with uncompromising availability and performance. This powerful combination reduces the costs of delivering IT services while also increasing service quality, IT efficiency, and business agility.

Manage from the Service Perspective to Be More Responsive to the Business

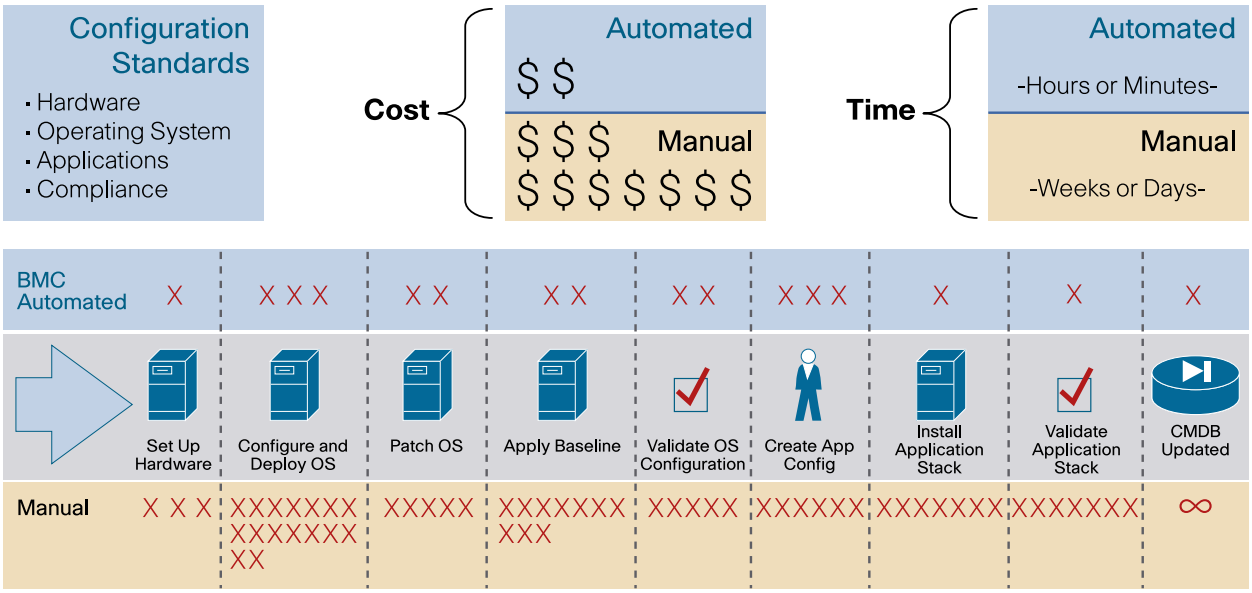
BMC BladeLogic for Cisco Unified Computing System provides the capability to configure and provision entire business services faster and with lower risk and cost. This solution helps ensure that all changes meet security, operational, and regulatory policies and reduces the risk of change in a highly complex environment. It also reduces the effort related to configuration change and the time required to roll out production applications. In addition, it increases the effectiveness of the operation of the platform through accurate planning, deployment, and management.

As a result of the tight integration with the Cisco Unified Computing System (UCS) Manager, BMC BladeLogic provides the capability to request hardware resources and provision new server instances from SANs, local disks, and VMware ESX hosts. Using BMC BladeLogic, administrators can fully operate the Cisco Unified Computing System, browse server instances, and take action to effect change in the environment.

Implement Automation to Achieve Process and Efficiency Gains

BMC BladeLogic for Cisco Unified Computing System automates tasks and procedures related to network, server, and application change, configuration, and release practices within the virtualized data center. These practices manage all aspects of a unified computing environment and have a significant effect on IT service availability and quality. A recent report by the IT Process Institute, “Change, Configuration, and Release Performance Study,” found that change, configuration, and release practices have a significant measurable influence on critical operation performance measures. They also have a substantial effect on the ongoing cost of IT. BMC BladeLogic for Cisco Unified Computing System reduces these ongoing operational costs while improving the quality, efficiency, and agility of core data center administrative processes by automating both repetitive manual tasks that are a process burden on crucial resources and the high-risk, high-impact procedures that have a significant potential effect on service quality. (Figure 1)

Figure 1. Automation Savings



BMC BladeLogic for Cisco Unified Computing System Solution

Policy-Based Configuration Management

BMC BladeLogic for Cisco Unified Computing System is tightly integrated with the Cisco UCS Manager and uses a policy-based approach to configure, patch, and update its associated storage, network, and server resources. BMC BladeLogic communicates with the Cisco UCS Manager through a granular set of XML interfaces that directly expose the hardware service profiles from the Cisco UCS Manager. These hardware service profiles are then paired with corresponding virtualization and application resources as specified in the BMC BladeLogic software service profile. Respective changes are applied to a specific policy and then synchronized with the target servers as appropriate. This bidirectional approach tightly couples the management planes of the two platforms and provides a new level of integration and event consistency compared to traditional management integration models. This approach reduces the cost and number of errors associated with management of a highly dynamic virtual server infrastructure. A cross-platform, command-line interface (BMC Network Shell) supports single sign-on using a range of authentication protocols. All user communication is encrypted, and all user actions are logged and can be authorized based on the user's role.

Service-Oriented Computing

Instead of solely managing configuration elements as individual entities, BMC BladeLogic manages infrastructure at the IT service level by assembling the requisite configuration elements of a service into a model for that service. After the model has been created, provisioning, change, and compliance tasks can be performed at the service level. In the background, BMC BladeLogic automatically manages all the underlying configuration elements. This service-oriented computing methodology simplifies the complexity of managing dynamic application environments.

Integrated Provisioning Across Management Functions

BMC BladeLogic for Cisco Unified Computing System integrates with and builds on the Cisco UCS Manager to automate the full server stack provisioning of the Cisco Unified Computing System, including the virtual hardware and network resources, base OS, drivers, disk layouts, system software, application middleware, and custom code and content at the business-application layer. By supporting configurations specific to Cisco Unified Computing System as well as any user-defined custom configurations, this highly flexible and customizable approach enables automation of the entire server provisioning process, resulting in a much simpler management approach and significantly reduced operating expenditures (OpEx) and TCO.

Sophisticated Rules-Based Access

With BMC BladeLogic and its service-oriented computing model, managing the Cisco Unified Computing System consists of provisioning a single model rather than each individual configuration element. Moreover, the IT department is now more tightly aligned with and responsive to the business because translating business requests into operational tasks and associated actions is so much easier.

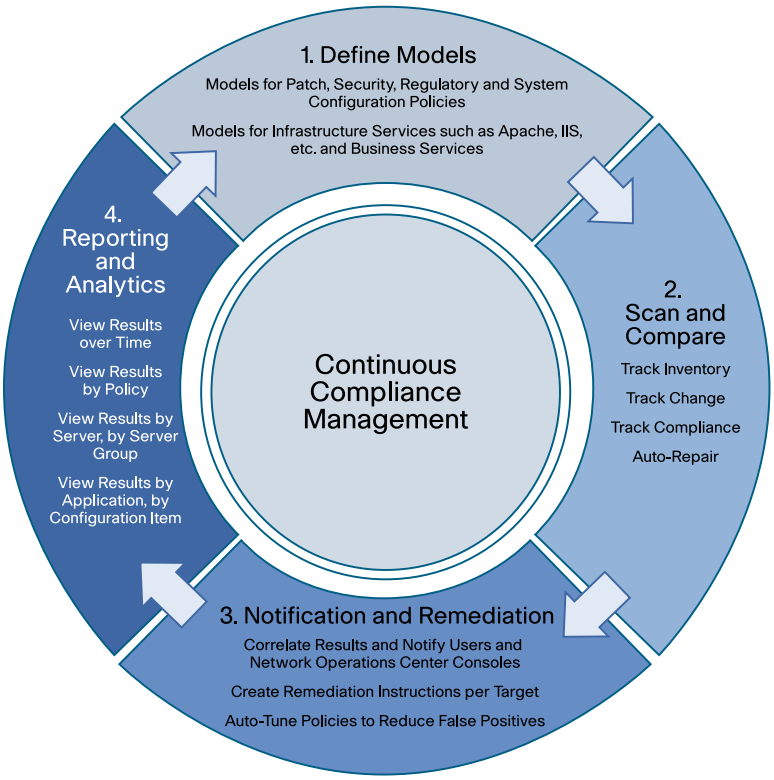
Operation Dashboards

BMC BladeLogic for Cisco Unified Computing System maintains a configuration management database (CMDB) for both server and applications infrastructure. In combination with a rich set of analytics, the CMDB gives management and operations staff access to complete and timely configuration, activity, and compliance information, providing a clear picture of the current state of business-critical applications and infrastructure and how that state has changed over time. While many solutions provide tactical reports documenting patch and rudimentary configuration concerns, BMC BladeLogic for Cisco Unified Computing System recognizes that management reporting is really about providing a holistic view of how change is affecting the business, identifying important concerns before they become problematic, and helping managers take action to prevent or resolve problems.

Optional Compliance Module

BMC BladeLogic provides the capability to define reference (desired state) configurations for the entire Cisco Unified Computing System or a specific subset of configuration components. After the configurations have been defined, BMC BladeLogic Compliance Manager can inspect those configurations to determine which servers do not comply with the reference configurations. Because reference configurations allow aggregation, multiple low-level reference configurations, such as patch standards and particular security standards, can be rolled into a larger application reference configuration. Furthermore, configurations of multiple live production servers can be compared when a reference configuration does not exist. Configurations of servers that are out of compliance can be automatically remediated (Figure 2), providing an extremely effective solution for the effects of configuration drift that occur in the data center.

Figure 2. Continuous Compliance



Increase Your Virtualization Investment and Start Saving Today

The foundation for a highly agile, business-focused IT environment starts with the implementation of the Cisco Unified Computing System and BMC BladeLogic.

The Cisco Unified Computing System changes the server and access tier deployment and operational paradigm for today's data center. In combination with the BMC Operations Manager, it enables you to dramatically accelerate the deployment of new infrastructure resources and application services to support changing business needs in the most cost-effective and efficient manner.

With BMC BladeLogic for Cisco Unified Computing System, IT departments can:

- Use one integrated platform to provision, configure, administer, and manage the Cisco Unified Computing System and associated applications, all through a single console for day-to-day server operations and activities
- Increase staff productivity and improve cost structure while supporting a complex and dynamic virtual environment
- Reduce complexity and better align with the business through the abstraction of IT configuration components into IT services, where management decisions are made at the IT service level
- Create an environment that supports an extremely high rate of change while helping ensure consistency and application stability, and in which data center resources are easily repurposed and reallocated based on changing business needs

Proven Operational Improvements and Payback

Using BMC BladeLogic, Chicago Mercantile Exchange increased the volume of changes they make in their environment, the number of servers they manage, and their server-to-administrator ratio (Figure 3).

Figure 3. Automation Results: Chicago Mercantile Exchange

	Before BMC		With BMC
Servers	900	400%	4,735
Applications	50		150
Administrators	20		40
Server: Admin Ratio	45:1	160%	118:1
Outages	2 Major		None
SOX 404 Solution	None		Fully Compliant
App Changes (Weekly)	200 (40 critical servers x 5 changes per week)	20,000%	40,000 (1,000 critical servers x 40 changes per week)
Changes: Admin Ratio	10:1		1000:1

For More Information

For more information about BMC and BMC BladeLogic for Cisco Unified Computing System, please visit http://www.cisco.com/go/ucs or http://www.bmc.com.

Americas Headquarters
Cisco Systems, Inc.
San Jose, CA

Asia Pacific Headquarters
Cisco Systems (USA) Pte. Ltd.
Singapore

Europe Headquarters
Cisco Systems International BV
Amsterdam, The Netherlands

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