Service Health in the Age of Virtualization and Cloud Computing

HP Business Service Management Solution

The New BSM Challenge

As the pace of business accelerates, companies everywhere are demanding more and more from IT—such as faster service delivery with lower risk and higher quality of service. To meet this challenge, IT needs to evolve.

Much of this evolution has to do with embracing technologies such as virtualization and cloud computing. Instead of building everything in-house, IT today finds itself in the business of procuring technologies from a host of providers, integrating them with existing infrastructure, delivering the end-to-end service to various constituents, and managing it all in a way that helps ensure the highest possible service levels.

While this new, much more dynamic world helps increase business agility, it also dramatically increases IT complexity and the rate of change. This makes smart management of IT operations more important than ever before.

The prevailing approach to IT operations, however, continues to focus on the performance of infrastructure components rather than the applications and services they support. This approach depends largely on manual process and the use of non-integrated tool sets that impede cross-silo collaboration and create huge inefficiencies among teams responsible for IT operations. In this context, most IT organizations pay little attention to the end-user experience and have limited means when it comes to connecting underlying infrastructure technologies to the business services they support. In a world of virtualization and cloud computing, this infrastructure is constantly changing. It may even be delivered by a third-party vendor rather the IT organization responsible for the health of the overall service. This only exacerbates the operational challenges that IT faces. To serve the business more effectively in this context, IT needs a new approach to managing IT operations. Call it the new business service management (BSM)—where the emphasis is on the management of business services in a unified manner regardless of where those services originate.

The New BSM Requirements

The IT organization needs an integrated approach to BSM that combines top-down and bottom-up approaches to monitoring and spans both physical and virtual infrastructure. The goal is to manage every element of the service—including infrastructure, applications, transactions, end-user experience, virtualization technology and services delivered via the cloud.

In practical terms, this requires a consolidated operations bridge that can help IT track and respond to infrastructure events occurring on the ground floor of IT (bottom up) and maintain service health in real time by monitoring the end-user experience (top down). This can enable IT to live up to increasingly demanding service level agreements and meet constantly evolving business needs. Requirements include an accurate run-time service model—as well as tools that enable collaboration, support automation and facilitate cloud computing.

The Run-Time Service Model

A service model is a map that displays all of the technology components associated with any service IT runs. Components can include transactions, applications, web servers, network switches, virtualized components and third-party cloud services. Clearly, having such a model can play a critically important role in effective business service management because when IT has an application or transaction problem, the service model can help quickly pinpoint the infrastructure components that may be playing a role in service disruptions users and customers may be experiencing. The service model also helps IT operations to do quick impact analysis in the event of an infrastructure or application issue.

The service model is “run-time” because in the virtualization and cloud-computing era, service infrastructure is constantly changing. Hence, it is imperative to help ensure the currency of this service model on a continuous, 24 x 7 basis so that IT can use an accurate service definition to troubleshoot service problems and manage service level agreements. As no organization can be expected to keep a constantly evolving service model up to date manually, automatic discovery is an essential capability. Here, nonintrusive probes can be used to automatically detect infrastructure, application and transaction changes in near real time—much the same way that a personal computer identifies newly added peripherals. An IT infrastructure is far more complex, so automatic discovery capabilities need to be broad enough to cover all relevant domains within the IT infrastructure—from applications to servers to the network itself. This serves as the foundation for effective BSM.

Automation for Lower Cost, Faster Response Times and Greater Control

Recent HP research estimates the average cost of manually handling a single application incident is $75 (not including the end-user impact of the application downtime). For organizations that manage thousands of events and incidents each day, the costs quickly add up. With the onset of virtualized and cloud services, not only will the number of application incidents increase, but also the complexity of these services will increase the cost of managing these incidents.

Because of this, it is important to automate routine IT tasks such as incident management and issue resolution, and a consolidated operations bridge and a run-time service model play a central role. With a consolidated operations bridge, all events are sent to a single console where they are automatically correlated. They are then analyzed according to the run-time service model to determine the underlying causal event and prioritized based on the impact to the business.

Using runbook automation, users can then launch an automated workflow that runs through the procedures to resolve the issue without the need for human intervention. Where issues do require human intervention, a ticket is automatically generated and enriched with state information, as well as relevant context and historical data. This helps to speed response times and increase staff productivity by allowing engineers to manage by exception—focusing in on only those issues that truly demand their attention.

Automation also helps ensure consistency and control by enforcing policy-driven approaches to issue and problem resolution. By removing the human factor from lower-level issues and routing enriched ticket information to appropriate parties for rapid resolution, [CustomerName] can vastly reduce errors while eliminating confusion that arises from duplication of effort. The end result is greater compliance with established IT governance policies and an improved ability to follow through on service level agreements.

The Importance of Collaboration

In rapidly changing IT environments, multiple business roles and IT domains must collaborate to track and maintain service health. This requires consolidation, personalization, and the ability to deliver information on the go.

Consolidated event management, for example, provides a single source of truth for what is happening in the infrastructure at any point in time. Instead of multiple teams chasing the same event from different perspectives, IT can quickly pinpoint the cause of a problem, make a determination of the potential business impact, and quickly route the problem to the right group so that it gets resolved without different groups working at cross purposes. This improves IT productivity and helps ensure high levels of services.

Based on this single source of truth, information needs to be delivered in a context appropriate to the role consuming it. This requires personalization. Line of business managers may want information on the value of transactions while IT operators may seek early warnings on failing network components to anticipate potential service disruptions.

Increasingly, this information needs to be delivered to a workforce and customer base that is on the go. For example, hardware engineers spend most of their time roaming the data center. These engineers could receive alerts via a mobile device, saving time by eliminating trips back and forth to their desks. The same could be true for line of business managers tracking transactions while on the road. Whatever the specific scenario, IT needs to be able to deliver the right information to the right people where and when they need it, regardless of the devices they use to access that information.

Business-Ready with Unified Cloud and Virtualization Management

Virtualization technology and cloud computing give IT greater abilities to flex capacity to meet demand, but they also take direct control of infrastructure resources out of the hands of IT. This is why it is more important than ever for IT to monitor service health from the perspective of the end user. At a time when data centers are based on a combination of physical and virtual/cloud infrastructure, this can help IT manage both in a unified manner.

With the groundwork laid as previously discussed (consolidated operations bridge, run-time service model, automated IT processes and more effective collaboration), IT can use end-user monitoring to quickly respond to issues it detects. Supporting heterogeneous and comprehensive management of virtualized services, for example, end-user monitoring can help IT monitor target service levels. When performance drops below predefined thresholds, IT can trace the problem back to its source for rapid resolution. For outsourcing scenarios in particular, this helps minimize risk by giving IT an effective way to track whether or not external service providers are meeting their commitments.

HP and the New BSM Solution

HP Software & Solutions is uniquely positioned to help [CustomerName] meet the challenges of effective BSM in a rapidly evolving IT environment that must contend with the dynamic nature of virtualization and cloud computing. Three product suites in particular play a role in [CustomerName]'s success:

- HP Operations Center: This software helps monitor, diagnose, and prioritize infrastructure problems based on business impact and supports consolidated operations. An integrated operations bridge consolidates event and performance data from both physical and virtual sources to reduce duplicate monitoring and boost productivity. Automated remediation capabilities help reduce mean time to repair (MTTR) while integrated service desk functionality automatically routes issues to the

appropriate domain expert complete with thorough background information to help ensure prompt resolution.

- HP Network Management Center: This software supports an integrated, holistic lifecycle approach to network management—one that leverages automation to drive down costs, improve compliance, and increase IT efficiency. [CustomerName] can unify fault, availability, and performance capabilities with change, configuration, and compliance while automating the technology process workflow across these capabilities. This integrated approach, called automated network management (ANM), enables companies to reduce the cost of meeting service level agreements, enhance network availability, and achieve compliant and hardened networks.
- HP Business Availability Center: This software serves as a comprehensive application management solution that helps [CustomerName] proactively identify and resolve problems quickly and efficiently. Allowing 360-degree monitoring and management of business service health from the end-user perspective, this software helps reduce downtime and improve the quality of service by improving availability and performance. This is accomplished by leveraging the Run-Time Service Model to quickly pinpoint the root cause of problems, and resolving them quickly through automated procedures and intelligent routing to the appropriate domain experts.