Next-Gen BSM: A New Path to Integrated, Service-Centric IT Availability and Performance Monitoring

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Table of Contents

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Executive Summary

The pinnacle of integrated, service-oriented management strategies is embodied by Business Service Management (BSM) solutions. Such products are intended to bring together a holistic/systemic view of IT infrastructure and services, recognize relationships between collections of elements, and put them into context regarding how they support business activities and processes. Large enterprise organizations have been the sweet spot for traditional BSM framework solutions, but product complexity, integration costs, and services needed for deployment and maintenance have made them impractical for the broader IT community. A new breed of next-generation BSM offerings is arising to provide more cost-effective answers that intrinsically unify data across IT technology domains, lowering both acquisition and deployment costs. This paper discusses the essential requirements for successful BSM deployments, examines how Next-Gen BSM solutions differ from traditional alternatives, and reviews a Next-Gen BSM solution offered by Centerity in light of those requirements.

Why BSM is Still the Best Strategy

The goals and objectives of BSM include an up-to-the-minute understanding of active Information Technology (IT) elements, how they relate to each other, and how the collective combinations are performing in support of essential business processes and activities. Optimally, this puts IT in a position of control for recognizing and measuring business value and prioritizing projects and actions according to business needs – true IT/business alignment. Case studies of successful BSM deployments have proven the operational and financial advantages that can be and have been achieved.

But getting the full value of a BSM tools/solution investment remains difficult and out of reach for many shops. Challenges to BSM success can be many, but most are either related to integration or costs. On the cost side, tools licensing is often overwhelmed by the cost of deployment and maintenance. Technical challenges related to integration are two-fold – bringing together all of the islands of data necessary to drive the BSM solution up front, followed by "brittleness" of the resulting architecture, and not being able to upgrade contributing management systems due to incompatible API or data structure changes.

Most successful BSM deployments have been marked by a small number of essentials. First is a dedicated leadership team that values measurement and will directly sponsor the requisite efforts to span traditional technology silos. Second is a long-term view that is patient enough to accommodate lengthy deployment projects so that the full value can be achieved. And finally, the resources to see the project through are also essential – both in financial and manpower terms. This is the typical realm of very large enterprise organizations, or the few mid-sized enterprises with exceptional dedication and strong commitments to service-centric IT.

If these success factors are not present, or are not persistent over time, BSM deployments are far less likely to deliver on aspirations of operational or financial returns. This situation has prevented many IT shops from even attempting to enter the BSM waters, and for those that have, many find themselves long on efforts but short on results.

And yet, despite the challenges, desires remain high among IT pros to find solutions that will deliver BSM value. Recent ENTERPRISE MANAGEMENT ASSOCIATES® (EMA™) research provides

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supporting evidence in this regard, such as the growing move towards cross-domain, service-centric strategies and organizational alignments within operations. Such shifts accentuate the need for precisely the types of visibility and impact analysis that true BSM can achieve. Additionally, IT pros vastly prefer management solutions that offer tight modular integration or are truly unified in nature over those that are best-in-class or best-in-suite, because of the inherently lowered barriers to cross-platform and cross-functional integration.

The ultimate goal of any BSM deployment project is to optimize IT's ability to positively influence the business through aligned planning and prioritized operational processes. At the top of the operational objectives list is understanding business impact of any outage or degradation, while also having enough information at hand to accelerate the diagnosis and mitigation process, ultimately reducing the mean time to restore services (MTTR). But an even more valuable outcome is to put the IT team in position to be truly proactive – to recognize and take preventative measures or make improvements to the applications and infrastructure that either avoid the business impact of failure or boost the business by successfully identifying and implementing efficiency enhancements. Both of these results – improved reactivity as well as enabled proactivity – can make a significant difference to the bottom line of the business by protecting customer satisfaction, avoiding penalties, and enabling flexibility and agility.

The Case for Next-Gen BSM

The core of any BSM solution starts with the ability to bring together management data across technology domains. This data will be necessary for understanding which technologies are present and active, which applications and services are being delivered by the infrastructure, which users and groups of users are engaging those applications and services, and finally, the experiential quality of those user interactions. Most BSM solutions will either integrate with or federate with existing management data stores (a.k.a. databases) or the primary compilation of a Configuration Management Database (CMDB) or Configuration Management System (CMS) as a primary technique for data collection and aggregation. Some BSM solutions will go further and directly collect metrics from users, applications, and infrastructure, either to fill gaps or as an alternative primary method. For example, measurements of user experience may be gathered via direct, passive agents or approximated by means of synthetic test agents, which often do not exist standalone and are only deployed as part of a BSM initiative.

Other essential capabilities of BSM solutions involve analysis, processing, interpretations, and presentation of the consolidated management data store and stream. This includes elements such as visualization in dashboards and map-based views, as well as alarm/incident logging and ticketing. Many systems will go further to provide intelligent automated analyses, such as business impact, problem root cause, and predictive analytics.

So BSM success is an important strategic goal for IT – one with direct business value attached and one that persists. Further, unified tooling strategies are deemed important by IT pros, due to cross-domain organizational shifts, acknowledgement of the integration challenge, as well as a desire to reduce cost by reducing the number of technology components (and vendor suppliers) required. Even further, options are needed that do not require the lead-time or the financial investment of traditional, island-hopping, grand BSM framework architectures. How can this challenge be addressed? What alternatives would make BSM achievable and reachable by a broader cross-section of organizations, not just the world's very largest?

Unified tooling strategies are important due to cross-domain organizational shifts, the integration challenge, and the desire to reduce cost, by reducing the number of technology components (and vendor suppliers) required.

The good news is that advances in management technologies have been combined with new design points based on lessons learned to bring about a whole new generation of BSM solutions. "Next-Gen BSM" solutions addresses both the integration technology and cost issues associated with traditional BSM by means of a singular, holistic architectural design focused on tight/unified integration across multiple managed technology domains and functional objectives. Let's look next at what goes into a BSM solution and how Next-Gen BSM approach differs.

Requirements for BSM Success: Old vs. New

Bringing together prioritized, business-relevant operational views and making them easily usable by multiple constituent audiences (across both IT and the served business) is a prime directive of any BSM solution, old or new. In this manner, IT managers, executives, and line of business heads are able to recognize and monitor critical IT resources in terms of how they are related directly to business processes and productivity. To be truly effective, BSM solutions must meet a number of specific technical requirements that underpin effective visibility:

- **Cross-Domain**: While in a few discrete cases, IT's customers consume individual technologies directly, most are concerned with combinations of technologies that comprise a service or facilitate access to and use of a particular application or set of applications. As such, it is essential that a BSM solution be able to draw operational data from all contributing technology domains-networks, servers, storage, and applications-regardless of their form – physical or virtual. While all traditional BSM solutions must address this, Next-Gen BSM solutions use a single solution architecture for monitoring all domains together, avoiding the need to reconcile data types/models, and avoiding a major (data) integration headache.

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- **Cross-constituency**: BSM solutions are intended to recognize the aggregate result of IT systems working together, the relationship between those systems and business priorities, and the impact any outage or degradation has on business processes. This is of interest to persons within the organization, or even external partners or customers, who each seek to understand the health, activity, and efficiency of the resources and applications that are of direct relevance to their own line of business or set of responsibilities. Consequently, BSM solutions must be able to present operational information in a manner that can be tailored directly to specific individual viewpoints, both in terms of presenting only relevant data as well as restricting access to data that is beyond the scope of any particular constituents rights and responsibilities. Next-Gen BSM solutions will address this need in essentially the same way as traditional BSM – by understanding the identity and authorization of each user/reader and providing appropriate access to data and controls.
- **Infrastructure** *plus* **Application Experience**: Since a BSM solution is intended to recognize, track, and present the relationships between IT resources and how they are consumed by the business, it is essential that all aspects of the contributing macro environment be monitored in conjunction with the viewpoint that IT customers will have–the end-user experience. An understanding of the user/customer experience, which could also be characterized as point of service delivery, is the starting point of many reactive troubleshooting and mediation workflows but can also be the starting point for proactive/preventative measures. To optimize the effectiveness and efficiency of either type of actions, end user experience and infrastructure health/activity metrics must be

collected and maintained within the same system. This is an area where Next-Gen BSM can save significant costs, by spanning infrastructure monitoring and application experience monitoring within a single unified system, thus completely avoiding the cost/flexibility penalties of systems and data integration.

- **Service Relationships** *plus* **Business Impact**: One essential capability required of a BSM system is the ability to understand the relationships between the services and applications that are consumed by IT end users and the enabling physical and virtual infrastructure resources which host and deliver them. Often model-based, such relationships allow the system to automatically recognize and interpret end user/customer and business impact whenever any service or application is impaired, either directly or indirectly, by any underlying infrastructure or application resource. Ideally, the BSM system will automatically discover and instantiate relationships as much as possible, allowing manual adjustments or additions but not requiring all such relationships to be manually defined. All BSM solutions, new or old, must capture service relationships, but not all will also provide direct measures of business impact on a live operational basis.
- **Internal** *plus* **External Resource Awareness**: More than ever before, IT architectures are becoming a hybrid mix of internal, privately owned resources and external, provider-hosted resources. For a BSM solution, this translates into a requirement for recognizing and gathering operational and relationship data from all resources regardless of where they exist or reside. This continues to be an area of evolutionary function, but any BSM solution that cannot accommodate external resources as part of a service model (and hence business impact analysis) will quickly become irrelevant in the age of cloud. Here, Next-Gen BSM solutions that were designed in the age of cloud have the edge, because they are typically already constructed to support mixed environments and thus avoid the need for adaptation/extension on the fly or in the field.

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- **Consoles** *plus* **Reports**: When the time comes to present operational data from the BSM solution, finding the right mixes of data and approaches to presentation can be a significant challenge. Historically, reports were the primary mechanism for sharing information, however dashboards are quickly replacing reports as a primary basis of collaboration in real-time. Ultimately, both forms of output and visibility are required, must be tunable to specific constituents interests, and must be easily adaptable without requiring substantial administrative or (even more costly) external services efforts. Most Next-Gen BSM solutions have an edge in this area because the latest lightweight, flexible/dynamic presentation techniques and technologies have been used to build user interface consoles and dashboards directly into the products, rather than requiring a separate product or platform for information sharing and collaboration.

TCO for BSM

Besides addressing technical and feature requirements, a BSM solution must also fit within the means of an organization, in terms of the cost of the entire lifecycle of acquisition, deployment, and maintenance. Commonly referred to as Total Cost of Ownership (TCO), the collection of these cost categories will constitute the investment part of any BSM initiative. Following are some key considerations regarding each piece of the business case that must be assessed when considering any BSM solution:

- **Acquisition** costs will include licensing of the BSM software as well as any physical compute systems that will be used as execution platform. Licensing can take many forms, normally including some aspect of per-element, per-user, or subscription basis.
- **Maintenance** and support charges are also an important part of acquisition cost in most cases and of long-term cost in virtually all cases. The only meaningful exception is in the case of subscription licensing that sometimes bundles the cost of support and maintenance.
- **Deployment** costs may be high or low, depending on the chosen product technology. Earlier-generation BSM solutions have required substantial investments in integration projects as part of deployment, in many cases overshadowing acquisition costs entirely and pushing deployment cycles from months into years.
- **Training** costs are another aspect of deployment, which may go beyond initial orientation to include advanced and ongoing/recurring refresher courses.
- **Administrative** costs will include salary of any cognizant or dedicated administrators, for the time that will be spent adding and supporting BSM system users, updating/refreshing integrations when elements and operational data sources are added or changed, for defining/refining/tuning service models, monitoring thresholds, event actions, report/dashboard templates, etc. These costs can also be nontrivial, if external services are required for adapting, extending, or updating the BSM system.

The TCO for BSM can be substantial, and has been historically in the case of many traditional solutions. In particular, large deployment costs coupled with high administrative costs tended to drive TCO to levels that were reachable/justifiable only by very large organizations, which could spread these costs across a broader set of potential savings and returns.

The Next-Gen BSM TCO Advantage

Next-Gen BSM solutions have been designed from the ground up in a holistic, unified manner, and thus offer the opportunity for significant savings in several of these categories. Simplified product architectures have reduced the "cost of goods" to BSM solution providers to deliver/support the technology in the first place, allowing a reduction in acquisition licensing costs. This has a parallel effect of reducing software maintenance and support costs, which are typically based on a percentage of licensing list prices. Deployment costs have been greatly lowered by means of lighter, more agile integration techniques and preconfigured packaging of fewer/simpler components. Improving intuitive usability of the BSM solution itself has reduced training costs. And finally, administrative cost is mitigated by means of improved flexibility for easy customization and system configuration/tuning without requiring external services.

Centerity Monitor – Universal Monitoring for Next-Gen BSM

Centerity Monitor was architected to act as an all-compassing enterprise management platform used to capture a complete understanding of IT infrastructure and application components and relate them to business processes and outcomes.

Founded in 2006, Centerity has focused on delivering products that support its core vision – a next-generation monitoring platform that is unified, scalable, and enterprise-class. The core solution, Centerity Monitor, was architected specifically to act as an all-encompassing enterprise management platform which could be used to capture a complete understanding of the full scope and range of interconnected IT infrastructure and application components and then relate those components to the business processes and outcomes they are meant to support.

The Centerity solution is deployed as one or more instances of Centerity Monitor servers, complemented by distributed probes to extend reach across large geographically distributed environments. An extensive library of interface adapters are provided to collect operational health and activity metrics from compute systems, network elements, storage systems, applications, databases, and virtually any IP-addressable, network-connected element, including IP phones, power systems, security monitoring systems, environmental controls, facilities controls, and more. Data can also be brought into the system from external management tools or sources as needed. Monitored data is aggregated and analyzed versus baselines for identifying existing or pending business impact or performance/availability issues at any level of the infrastructure. Finally, a user presentation layer communicates health and status of business services, as well as contributed components, via a presentation and alerting functional tier. The aggregate solution architecture is depicted in Figure 1 below.

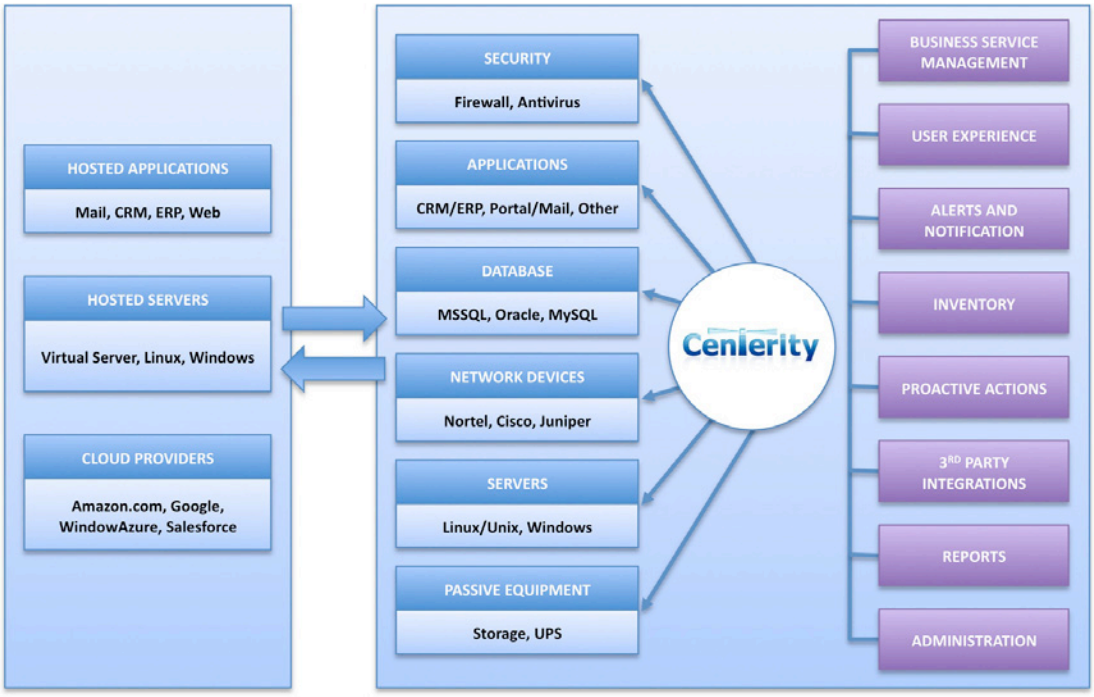

Figure 1. Centerity Monitor solution architecture

The solution leverages broad data collection, analysis, and presentation abilities to deliver Next-gen BSM features across the entire range of requirements categories outlined above. In particular, Centerity Monitor provides the following functions:

- **Infrastructure Monitoring & Availability**: Centerity Monitor can be used to gather health indicators as alerts/alarms from all forms of infrastructure – compute, storage, network, facilities – whether virtual or physical in nature. These features satisfy BSM requirements for cross-domain monitoring that can support both internal and external resources as part of the hybrid infrastructure/service continuum.
- **Performance Monitoring**: Centerity Monitor includes functionality to harvest performance metrics and data across all IT technology domains, spanning infrastructure as well as applications, either on a synchronous (i.e. polled) or asynchronous (i.e. NetFlow, log file entries) basis. These features meet BSM requirements for cross-domain, internal/external coverage that spans infrastructure plus applications.
- **User Experience**: Centerity Monitor includes directly embedded capabilities to monitor, baseline, and trend user experience data enterprise-wide via synthetic testing of both simple and complex user activities. The system correlates those measures with infrastructure and application monitoring data to expose opportunities for proactive interventions. This meets the BSM requirement for understanding experience and infrastructure with the same system.
- **Business Service Awareness**: The Centerity solution provides service modeling capabilities to relate infrastructure and applications to services that are delivered to the business, assign and monitor Service Level Agreement (SLA) compliance, proactively alert IT operators when SLAs are in danger of breach, recognize/report business impact resulting from any component impairments, and execute root cause analyses. These features meet the BSM requirement for providing service understanding as well as business impact analysis with a single solution.
- **Visualization**: Centerity Monitor provides a full complement of consoles, dashboards, and reports via web-based interfaces. Included are event/alarm views, business service views, geographical and topological maps, and graphical/tabular reports, all of which can be defined or customized without professional services and built to accommodate the unique needs of any IT, customer, or served business constituent. These features address BSM requirements for cross-constituent support as well as providing a full range of console plus reporting capabilities.

The breadth and diversity of Centerity's product deployments underscores the flexibility of the solution. EMA conversations with Centerity customers included: A Web commerce company monitoring revenue-generating infrastructure that supports over 12 million unique visits/month; A government agency that uses the system for enterprise-wide monitoring across network, servers, and desktops; A communications services provider monitoring thousands of mixed elements (network, server, VoIP, and more) across internal and revenue-generated infrastructures; An insurance company that relies heavily on its IT infrastructure to provide reliable on-line services to hundreds of thousands of customers.

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Common (customer comment) themes included the Centerity solution's remarkable flexibility for addressing any managed environment and mix of managed elements, as well as the ease of deploying, configuring, and adapting the system to specific business monitoring needs.

as well as the ease of deploying, configuring, and adapting the system to specific business monitoring needs. "We have found the automated discovery features to be a great help," said an IT exec from the Web commerce company. "Adding management for new nodes takes almost no effort."

For the government agency, ease of use was essential. "We replaced a big-four vendor with Centerity Monitor," said the agency's technology manager. "We needed a system that made it possible for operators to easily monitor everything end to end from servers to networks and to desktops, and the Centerity solution was a much better answer for this."

The communications provider started by deploying the Centerity solution for managing their internal IT infrastructure, but recognized that it could also meet their needs for service infrastructure. "We deployed it to support our VoIP services, and then our collocation and hosting services," said the NOC manager. "The ability to integrate customer (user) experience was really important for us, and the flexibility of the system is amazing. We have had to do a lot of adaptations and extensions, but they have been fast, low cost, and effective on every account. We were able to do almost all the work ourselves, but whenever we needed Centerity's help, they were quick to respond and quick to deliver."

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The insurance provider had several management systems in place and was able to consolidate onto the Centerity platform. "Centerity Monitor System provides us with a central monitoring platform and a single pane of glass (one dashboard) for the entire IT environment including servers, networking, OS, DB, storage, internet services, applications and much more," said the company's CTO. "Centerity monitor also provides us with advanced monitoring features such as user experience, business services and dynamic maps."

EMA Perspective

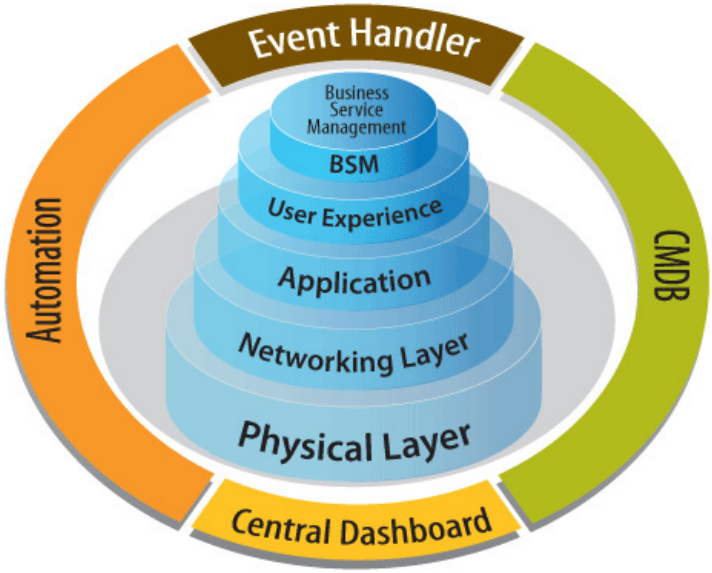
The future of IT management, as IT slowly but surely becomes an internal service provider rather than just a technology cost center, demands the business awareness and customer savvy offered by BSM solutions. Only in such a way can IT continuously understand how well its applications, services, and infrastructures are playing their critical collective role in supporting the organization and doing so in tune with the priorities for the organization. EMA research has repeatedly validated the link between successful BSM project deployments and improved IT service quality.

But all is not well in the world of BSM. Organizations of all sizes have the same strategic demands with respect to IT evolution, yet traditional BSM was designed for ultra-scale, ultra–complex demands of large enterprise. As a result, traditional BSM solutions require a minimum threshold of investment that puts them out of reach for far too many worthy and needy organizations. A next generation of BSM solutions is the answer – tightly integrated, unified monitoring and management products that are fast to deploy, easy to adapt, quick to show value, and far less expensive to own. These Next-Gen BSM solutions represent a realistic path to capturing the strategic value of BSM for the broader world.

Centerity offers exactly such a Next-Gen BSM solution. Architected as a unified system crossing all of the traditional technology domains and optimized for flexibility, adaptability, and service-awareness, Centerity Monitor is successfully delivering BSM value to a broad cross section of organizations large and small. Thought you couldn't reach the BSM promised land? Think again, and then take a look at how Centerity is addressing the challenge.

About Centerity

Centerity Systems, Inc. (www.centerity.com) provides a unique All-in-One performance and availability monitoring solution for the entire IT and network infrastructure. Centerity Monitor will track, detect, and monitor your physical and virtual servers, standard and proprietary applications, networks, storage, databases, and passive equipment whether it exists internally or in the cloud. Centerity's advanced features provide accurate measurement of performance and availability as well as End-User Experience Monitoring, Business Service Management (BSM), Inventory Management and dynamic threshold management.



About Enterprise Management Associates, Inc.

Founded in 1996, Enterprise Management Associates (EMA) is a leading industry analyst firm that provides deep insight across the full spectrum of IT and data management technologies. EMA analysts leverage a unique combination of practical experience, insight into industry best practices, and in-depth knowledge of current and planned vendor solutions to help its clients achieve their goals. Learn more about EMA research, analysis, and consulting services for enterprise line of business users, IT professionals and IT vendors at www.enterprisemanagement.com or blogs.enterprisemanagement.com. You can also follow EMA on Twitter or Facebook.

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