

Four Priorities for Integrated, Service-Centric Performance Management

An ENTERPRISE MANAGEMENT ASSOCIATES® (EMATM) White Paper
Prepared for Watch4net

May 2011



*IT & DATA MANAGEMENT RESEARCH,
INDUSTRY ANALYSIS & CONSULTING*

Four Priorities for Integrated, Service-Centric Performance Management

Table of Contents

- Executive Summary1
- Managing Performance in the Age of Virtualization and Cloud.....1
- Four Priorities for Performance Management2
 - Flexibility.....2
 - Scalability2
 - Service-centricity2
 - Cross-domain Technology Support3
- Getting There – Options for Deploying Advanced Performance Management.....3
- Watch4net APG – Integrated, Service-Centric Performance Management5
- EMA Perspective.....7
- About Watch4net.....8



Four Priorities for Integrated, Service-Centric Performance Management

Executive Summary

A new frontier faces operations teams making the transition from focusing on device availability to focusing on service quality and performance. Making this change requires expanding the scope of management activities and rethinking management tools architectures to embrace sustained performance monitoring spanning all of the contributing technologies and domains that must come together to comprise today's highly flexible and dynamic services. Tooling options for integrated, service-centric performance management include single-vendor suites, domain-specific best of breed products, and a promising alternative – cross-domain, integrated performance managers. This latter class can offer a compelling balance of functional capability matched with low integration costs and low total cost of ownership. This ENTERPRISE MANAGEMENT ASSOCIATES® (EMA™) paper evaluates priorities for service-centric performance management and analyzes how one cross-domain integrated solution, Watch4net's APG, measures up.

Managing Performance in the Age of Virtualization and Cloud

Today's IT infrastructure managers have always had a tough job, trying to keep up with network, server, application and client growth as well as keeping up with new technology introductions without growing staff. But the dual disruptive trends of server virtualization and Cloud services represent challenges of unprecedented scale. These two related evolutions bring with them new levels of complexity, growth (in number of managed elements), and high rates of change. They are also catalysts in another significant organizational and cultural change – the inevitable shift towards service-centric operations, as a byproduct of turning IT into an internal private Cloud provider to its served organization.

These changes are nothing less than revolutionary to many IT organizations, spawning re-assessments of management tools, technologies, and practices in order to achieve cross-domain alignment to the new service-oriented mandate. The recent EMA research report, *Network Management and the Responsible, Virtualized Cloud* (February 2011) indicates that most organizations adopting server virtualization and Cloud services are seeing direct impacts across multiple management disciplines and management tools as a result. Of those sampled, the top two areas impacted when deploying Cloud services were Network Performance Management (59%) and Application Performance Management (56%).

Further, among those actively deploying server virtualization, over half (53%) indicated that they had purchased and deployed new management tools for monitoring and troubleshooting. EMA analysis indicates that much of this has been driven by the rise of a new organizational construct, Cloud-specific and cross-domain support teams, which between 2009 and 2010 grew 50% to clearly become the most commonly reported as primarily responsible for Cloud service performance and quality management.

From the tools and technology perspective, this means re-examining current management products to determine if they will keep pace, directly providing or (at least) directly contributing to integrated viewpoints. Further, they will need to deliver scale, automation, and flexibility to keep up with the increasingly dynamic nature of the managed environment. Manual, rigorous analysis must be possible but should be avoided as a primary means of troubleshooting, so that when problems do occur, diagnosis can be conducted in an efficient, top-down manner. Management systems should provide proactive indications of issues before they become incidents, ultimately improving both MTBF as well

These changes are nothing less than revolutionary to many organizations, spawning re-assessments of tools, technologies, and practices

Four Priorities for Integrated, Service-Centric Performance Management

as MTTR. Finally, it is imperative that service orientation be included across the management tools architecture, so that operations may more closely tie their day-to-day and minute-to-minute actions and priorities to those applications and services that are most critical to the businesses and organizations they support.

Four Priorities for Performance Management

These high level objectives can be broken down into many specific requirements for management tools. Following are more detailed discussions of four key areas of priority, which EMA has identified for assessing the ability of management tools to facilitate the transition to and ongoing support of virtualized and Cloud infrastructures:

Flexibility

A primary attraction of both Cloud and virtualized environments is flexibility and agility, offering the opportunity to rapidly enable changing business priorities and initiatives. With an agile infrastructure comes the need for agile infrastructure management. Flexibility in performance management means that solutions must be able to readily accommodate regular, even frequent changes in composition of and relationships between elements in the infrastructure. Helpful here are capabilities such as a rich existing library of supported element types, configuration-based customizations that can be executed as needed by operators (rather than requiring product development or external professional services), and automated recognition of changes in the managed environment that are embraced via automated adjustments to monitoring profiles and regimes.

Performance management priorities can be grouped into four areas: flexibility, scalability, service-centricity, and cross-domain technology support

Scalability

Rarely do today's IT infrastructures go through a prolonged period of contraction – much more common is steady, continuous growth. And not all that uncommon is explosive growth, particularly when enabled by technologies such as server virtualization, which makes deploying new servers almost trivial. Even in organizations that are relatively static in terms of their overall size, the number of connected elements that make up the application and service delivery environments seems to grow inevitably.

Performance management tools are particularly stretched by this trend in two important ways: First, the number of managed elements continues to grow, especially if the solution will be covering multiple technology domains, so they need to be highly scalable and optimized for collecting hundreds of metrics from thousands of sources. Secondly, performance management systems collect large volumes of metrics that must be made available as quickly as possible (for real-time incident troubleshooting and diagnostics) but also warehoused for long periods of time (for planning and problem analysis), resulting in substantial storage needs.

Service-centricity

There has long been a growing trend within IT to move away from break-fix, reactive operations that addressed issues on a “loudest first” basis and towards business-aware, proactive practices that assure the most mission-critical applications are maintained above all others. This has been standard practice within the service provider community for years, and within enterprises, initiatives such as ITIL, CoBIT, and Six Sigma have been adopted by a growing number of forward-looking organizations committed to

Four Priorities for Integrated, Service-Centric Performance Management

Performance management tools must include a means to recognize relationships between monitored elements and the services they participate in delivering

moving towards a service-centric approach to IT. But for the industry as a whole, the relatively recent concept of an internal private Cloud is catching on fast and accelerating this evolutionary process.

Performance management tools need to support this transition in a few very specific ways. First, there must be a means to recognize the relationships between each of the monitored elements or components and the applications and services they are expected to participate in delivering. This is commonly accomplished via the use of modeling, and includes attributes such as user/customer, service

type, and Service Level Agreements (SLAs). Next, device-specific viewpoints must be complemented with service-experience metrics, so that IT can understand not only what it thinks it is delivering but also their user/customers' experience in receiving those services. And finally, views into performance health, status, and activity must be viewable on a service-by-service basis tuned to the structures of the served organization, not solely on the basis of technology employed.

Cross-domain Technology Support

Related to service-centricity, and perhaps required to achieve truly service-oriented operations, is the need to bring together performance and health data from each of the technology domains that make up today's complex, multi-tiered, widely distributed delivery infrastructures. With the advent of virtualization within every layer of the stack, the traditional boundaries between technology domains (servers, networks, storage, and applications) are blurring, and the interdependencies and relationships between them are becoming increasingly important. Consequently, performance management systems that can draw and relate performance metrics for multiple technology domains can deliver great advantages, aggregating and correlating data to shorten the path to actionable operational intelligence.

The challenge here, of course, is that performance tools must be flexible enough to be able to accommodate the wide variety of specifics within each domain and the sometimes-wide variety of management interface technologies needed to collect performance data successfully. Further, they must be able to recognize multiple technologies within each domain (for instance, mobile/wireless access combined with managed services and high speed core networks in the datacenter) while also spanning application, compute, storage, and delivery tiers.

Getting There – Options for Deploying Advanced Performance Management

When evaluating strategies and solutions to meet these and other organization-specific requirements for performance management, the number of choices can be daunting. One of the most important questions to be asked is how much your organization prefers to work with a single vendor versus multiple vendors of management technology. There are three primary approaches in this regard:

1. **Use best-of-breed performance tools for each domain and link them together with an operations bridge.** The advantages of this approach are that there are often unique, domain-centric features that can only be found via best-of-breed systems, and such systems will often be the first to deliver integrated support of new leading-edge/bleeding-edge technologies. The disadvantages of this approach are that operators are often left with primary responsibility for

Four Priorities for Integrated, Service-Centric Performance Management

integrating systems, and as a result the overall tools architecture can suffer from fragility due to the challenge of coordinating multiple product releases and patches. Another disadvantage is that best-of-breed tools often have their own distinct paradigms for consoles/dashboards/reports as well as system administration, resulting in increased learning curves and less facile support for collaboration. Finally, this approach tends to be the most expensive overall, due to the combined need for commissioning and maintaining custom integrations and the fact that tools must be licensed independently, leaving little opportunity for leveraged negotiations.

Options for advanced performance management tools include per-technology best of breed, broad suites, and cross-domain integrated solutions

- 2. Add performance management as an incremental element of a broad framework/suite from a single vendor.** This approach offers the advantage of pre-integration as well as (in some cases) a common administrative and user interface paradigm, reducing deployment and training costs. The disadvantages of this approach is that suite-based tools are commonly less feature-rich, more services-intensive to customize, and slow to adopt and support new technologies due to the need to verify changes across a solution suite that may be much broader than actually in use. Further, there is always the danger of “vendor lock-in” with this approach.
- 3. Use integrated performance management tools that cover multiple technology domains and integrate them with other systems at the functional discipline level.** This hybrid method has advantages in that some of the chaos is avoided over a technology-specific, best-of-breed approach while still capturing the value of solutions that focus on a specific type of management functionality, such as performance management. The total number of integrations can also be reduced, which in turn lessens architectural fragility. The only disadvantages of this approach are that it does still require an IT team to deal with more management vendor relationships than the framework/suite approach, and there may be somewhat less specialized feature support than pure technology-specific best-of-breed tools.

Each IT organization will choose from these approaches based on a combination of factors that will ultimately translate into an assessment of total cost of ownership/operations balanced against the driving impact costs of downtime or measurable degradations in service performance. Factors that contribute to this analysis will include cost of maintaining existing products in place and the depth of staff knowledge versus the time and cost of deploying new, augmentative, or alternative solutions. In most organizations, the need to maximize functional capability while also minimizing total cost of acquisition and long-term ownership will naturally lead them towards the cross-domain performance management approach.

Four Priorities for Integrated, Service-Centric Performance Management

Watch4net APG – Integrated, Service-Centric Performance Management

Headquartered in Montreal and with customers worldwide, Watch4Net has been meeting performance management needs via their APG performance management system since 2004. Most APG deployments to date have been within the service provider community, though they have also successfully engaged enterprise adopters on a regular basis throughout their history.

Watch4Net's APG solution is built by means of a traditional multi-tiered architecture (see Figure 1.) Performance data collection is accomplished by means of one or more APG Collectors from IT infrastructure devices, systems, and components, or from other management systems or data sources. At the central data consolidation layer is the APG Backend/Database, where all performance data is compiled, normalized, and stored. At the presentation layer, APG offers Web portals, a deep and extensive library of pre-existing reports, outbound event/alert APIs, and even an iPhone App. The solution can be configured to utilize multiple APG elements at each layer for scale and resiliency.

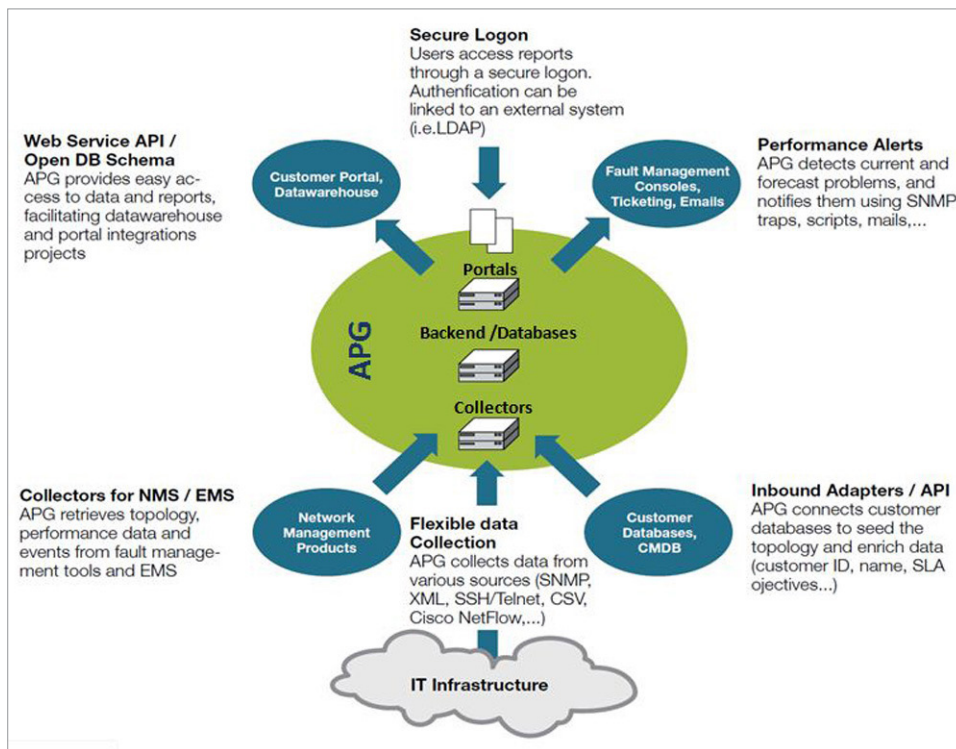


Figure 1: APG Solution Architecture

The APG solution has evolved in a way that naturally supports all four priorities for integrated, service-centric performance management. Following is a discussion of how each is addressed:

1. **Flexibility** – In service provider environments, management tools integration is paramount and there often exists a wide range of management interface technologies. The APG solution was designed to accommodate these needs, but with one additional specific objective – that existing interfaces could be modified and new ones added with a minimum of time and effort. Further,

Four Priorities for Integrated, Service-Centric Performance Management

the system was designed to provide customers/operators with complete control over the definition and modification of reporting, whether starting from an existing Report Pack template or creating new reports from scratch. The net result of these design criteria, successfully met within APG, is a highly flexible solution that minimizes integration effort, customization effort and architectural fragility.

- 2. Scalability** – Also a side benefit of being designed for large-scale service provider settings, the APG solution can readily accommodate hundreds of thousands of managed elements and millions of performance metrics. The APG architecture supports distributed, balanced loading at all tiers – collection, database, and presentation – as well as High Availability configurations to assure operational continuity if any management components themselves happen to fail. Collectively, this puts APG in league with the best in the market for scale and reliability.
- 3. Service Centricity** – All performance data brought into the APG system is aligned and correlated with service constructs and service level agreement definitions. Services can be defined directly within APG and reconciled/updated via integration with an external CMDB/CMS or service management database. This allows operations teams to monitor performance and triage responses to existing or potential performance issues based on impact and business priority (see Figure 2). The system includes common core reports for SLA reporting, and fully supports multi-tenancy, another customer/service-centric set of features for managing data and portal access/presentations on a customer-by-customer, service-by-service, line-of-business by line-of-business basis.

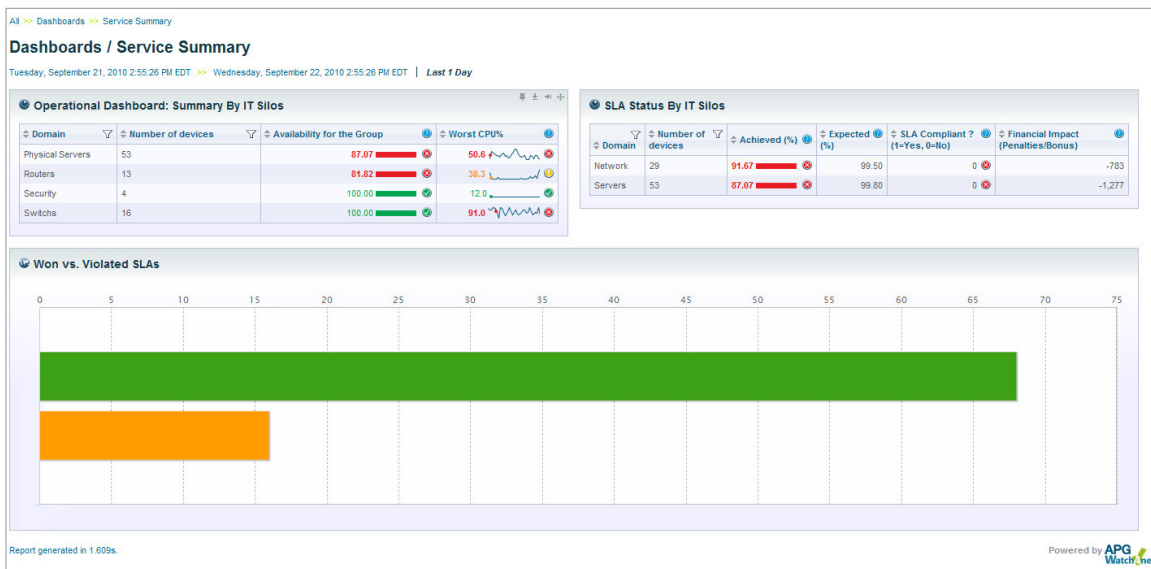


Figure 2. Service and SLA status dashboard view

Four Priorities for Integrated, Service-Centric Performance Management

- 4. Cross-Domain Technology Support** – Perhaps the most unique capability within APG is its ability to support data collection, correlation, and presentation across all of the technology domains that must come together seamlessly to deliver today’s complex, composite applications and services. A great example of this is the solution’s support for VCE Vblock deployments, where storage, networking, physical computing and virtual computing are all brought together in a single integrated system (see Figure 3). Beyond physical/virtual infrastructure, APG supports direct collection of performance data from within the application layer, covering the last of the major components that will come together to complete internal private Cloud services.

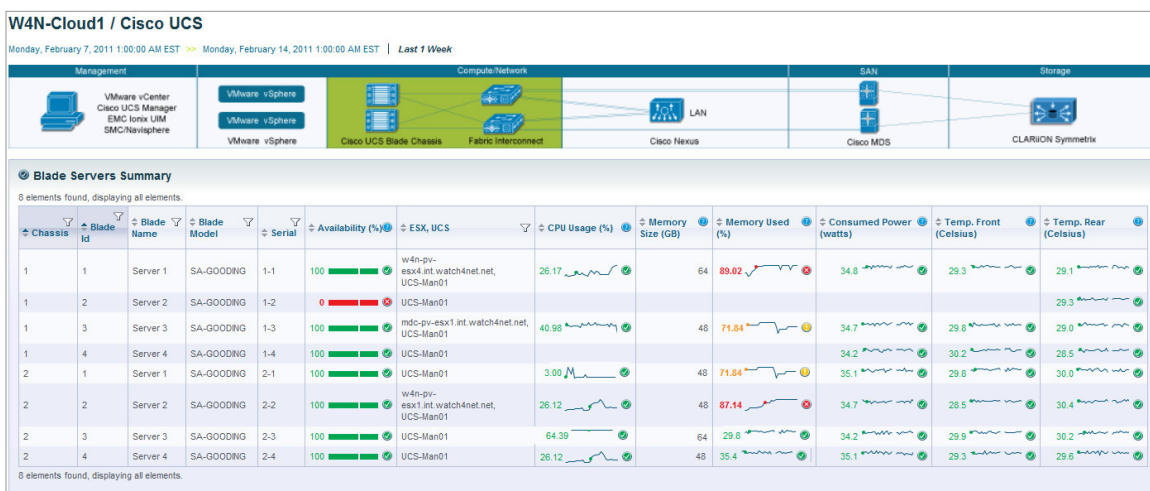


Figure 3. Vblock integrated web portal view

With strong support for all four priorities, the APG solution is fully capable of playing the role of common performance management platform across all components that make up today’s complex, composite Cloud architectures.

EMA Perspective

The clearest path to IT’s future opportunity, to evolve from tactical cost center to strategic business enabler, is service-oriented management. The Internal Private Cloud phenomenon, where existing IT infrastructure and applications are restructured and re-launched as internal services, may hold the key for many organizations to finally embrace service-centricity. EMA strongly advocates for the adoption service-oriented approaches across all management disciplines and for requiring that core management tools and technologies support integration and automation of service-oriented management practices. For any IT organization in the process of considering or planning a transition to an internal private Cloud operating model, evaluation of management tools, technology, and architecture is an essential and strategic step in that process.

With the breadth and depth of their APG performance management system, Watch4Net has delivered a solution that can viably support hybrid management tools architectures by crossing multiple domains and consolidating performance management data across network, systems, storage, and applications. The system’s flexibility bodes well for accommodating new technologies, and its scale is among the best.

Four Priorities for Integrated, Service-Centric Performance Management

And having been built and proven directly within service provider environments, it has an intrinsically service-oriented architecture that offers a clear advantage for anyone heading in that direction. With these strengths and attributes in place, Watch4Net's APG solution should be considered a valuable and viable candidate for managing performance in emerging Cloud infrastructures.

About Watch4net

Watch4net is a leading provider of carrier-class service assurance software. Enterprises and service providers around the world use Watch4net's flagship APG Software Suite for performance management of the network, data-centers and cloud infrastructures. APG consolidates, unifies and analyses information to provide real-time, historical, and projected visibility into the health of infrastructures and business services. Privately held and headquartered in Montreal, Watch4net has offices in Canada, Germany and UK to serve its fast growing customer base. For more information, visit www.watch4net.com.

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 IT professionals, lines of business users, and IT vendors at www.enterprisemanagement.com or follow [EMA on Twitter](#).

This report in whole or in part may not be duplicated, reproduced, stored in a retrieval system or retransmitted without prior written permission of Enterprise Management Associates, Inc. All opinions and estimates herein constitute our judgement as of this date and are subject to change without notice. Product names mentioned herein may be trademarks and/or registered trademarks of their respective companies. "EMA" and "Enterprise Management Associates" are trademarks of Enterprise Management Associates, Inc. in the United States and other countries.

©2011 Enterprise Management Associates, Inc. All Rights Reserved. EMATM, ENTERPRISE MANAGEMENT ASSOCIATES®, and the mobius symbol are registered trademarks or common-law trademarks of Enterprise Management Associates, Inc.

Corporate Headquarters:

5777 Central Avenue, Suite 105
Boulder, CO 80301
Phone: +1 303.543.9500
Fax: +1 303.543.7687
www.enterprisemanagement.com
2272.052311