unified monitoring

a business perspective

agility
made possible™

ca
technologies

table of contents

executive summary

In the past few years, the enterprise computing landscape has changed dramatically. Virtualization, outsourcing, SaaS, and cloud computing are creating fundamental changes, and ushering in an era in which enterprises distribute increasingly critical IT assets and applications across multiple service providers. These changes are rendering legacy monitoring tools, which have their roots in the computing environments of a decade or more ago, virtually useless. This paper explores today's computing trends and their monitoring implications in detail. In addition, it reveals how a new monitoring paradigm, the Nimsoft Unified Monitoring architecture, uniquely addresses the monitoring realities of today's and tomorrow's enterprises—whether they rely on internal platforms, external service providers, or a combination of both.

Introduction

In a remarkably short time, changing technologies and economic realities have completely altered the face of enterprise computing. And the changes are just beginning.

Virtualization is rippling through data centers. Economic pressures are forcing IT managers to accelerate outsourcing to managed service and hosting providers. Enterprise class SaaS applications have emerged. And, amidst all the hype, the era of cloud computing really has arrived. Together, these trends are ushering in an increased reliance on externally hosted computing services, marking the beginning of what some believe will be a move to the "all cloud enterprise", an organization that relies solely on externally hosted services for its computing infrastructure. Whether or not this vision turns out to hold true for most enterprises, there is no doubt that external SaaS and cloud offerings are here to stay, and will play increasingly important roles in how enterprises deliver and consume business applications in the years ahead.

Already, these trends are delivering significant benefits—and even more significant challenges for IT operations groups. Specifically, how, in an environment with an increasing mix of externally

Trends in IT service delivery

Emergence of the next generation data center:

- Virtualization moving into production
- New technologies enabling "internal clouds".
- Cost and regulation focus on power consumption and savings.

Availability and rapid adoption of enterprise class SaaS applications.

Third party hosting of infrastructure components and applications.

Outsourcing of application management to service providers.

Early trial and adoption of cloud computing, with mainstream adoption looming.

hosted services, do enterprises monitor and manage service levels? Clearly, in today's always-on business environments, the benefits of adopting external services can't come at the expense of service availability or performance.

Today, virtualization, SaaS, cloud computing, and outsourced infrastructures have made it difficult for IT operations staff to understand, let alone control, service levels. Tomorrow, as organizations continue to rely increasingly on external platforms, the challenges will grow more pronounced—rendering the legacy monitoring systems of the past irrelevant.

In order to successfully leverage these new service delivery platforms, IT operations teams will need a cohesive, sophisticated view of the disparate, remote services on which their business relies. The CA Nimsoft architecture delivers just that. It is a complete technical and business solution for monitoring the performance and availability of business services across all disparate computing environments. With the CA Nimsoft architecture, IT operations can understand performance and availability of services, react to and prevent problems, and optimize service delivery—across a broad range of computing environments. As a result, organizations can confidently leverage the opportunities of today's emerging trends—without increasing staffing or operational costs, or requiring new tools or training.

Section 1: Today's emerging computing environments

Monitoring IT assets to ensure service delivery in today's emerging data centers—which are employing virtualization, internal clouds, and other complex technologies—is plenty challenging in its own right. At the same time, the increased outsourcing of vital services—whether through SaaS, cloud, or traditional outsourcing—further compounds matters. These technologies and approaches all promise great benefits, but also raise important implications and monitoring requirements for IT operations staffs. Following is an overview of these benefits and challenges.

Today's trends: The opportunities and challenges

The trend	The opportunities	The monitoring challenges
Next Generation Data Center	Virtualization and internal clouds providing expandable computing resources to internal business customers	▪ Gaining optimal utilization of the virtualized environment ▪ Ensuring timely issue identification and risk mitigation of virtualized and shared resources
SaaS	SaaS reduces start up, infrastructure, and maintenance costs	▪ Making sure SaaS platforms provide the requisite availability and responsiveness without direct access to computing resources ▪ Mitigating risks of service degradation and downtime

Strategic outsourcing	Outsourcing delivers lower cost of capital acquisition, faster start-up time, and lower operational cost through efficiencies of scale—freeing internal resources to handle more strategic projects	• Monitoring performance against contracted service level agreements • Working collaboratively with service strategic projects providers to do effective resource allocation and planning
Cloud computing	Cloud offerings provide organizations with near infinite scalability and unprecedented agility in adapting to changing market requirements—all delivered through a cost effective, pay-as-you-go pricing model	Understanding and managing the complexity and dynamism of virtualization, and the additional layers of complexity posed by the outsourced nature of the cloud

Section 2: Challenges of monitoring today's environments with yesterday's tools

In an era of tight spending, reduced profit expectations, and rising energy costs and environmental concerns, enterprise computing infrastructures are increasingly reliant upon virtualization, outsourcing, SaaS, and cloud computing. As outlined above, for all the benefits promised by these emerging computing approaches, there is a flip side, with each new paradigm presenting a new set of demands and challenges. In these emerging environments, monitoring and service level management grow both more challenging—and more critical to success.

Figure A.

All emerging computing trends require different monitoring responsibilities for consumers and service providers. While the scope of responsibilities may change, in all cases monitoring and management remains a critical means to ensure availability.

Management responsibilities vary by delivery platform

Figure B.

When a business service depends on a combination of cloud-based resources, SaaS applications, a hosted Exchange implementation, and the internal virtualized data center, discovering and isolating the cause of performance and availability issues is not possible with legacy solutions.

A hybrid e-commerce business service
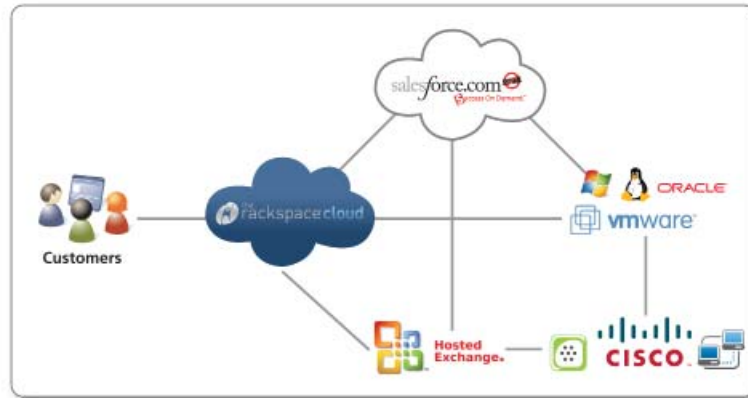
As a result, internal IT operations groups, already resource constrained, play a vital role in monitoring and managing service levels. As figure A shows, across outsourced/hosted, SaaS, and cloud environments, a large monitoring burden still falls on the end user organization.

For most enterprises, it's traditionally been difficult to cost effectively monitor and manage service level delivery. With traditional monitoring solutions, monitoring a business service housed entirely in the internal data center was difficult in its own right. Much of the frustration with legacy solutions is that, to get a full view of the performance and availability of an internal business service, IT needs to deploy anywhere from 6 to 12 products.

Further, these traditional solutions were architected long before the advent of virtualization and were solely designed to manage internally hosted environments. In today's emerging computing environment, these limitations and complexity make monitoring service levels next to impossible. Take an e-commerce service for example. In the very near future, that e-commerce service may rely on an SaaS vendor, a cloud-based service provider, an internal virtualized data center, and more. An example of such a service is shown in Figure B. If a customer reports an issue encountered during a transaction, how does an IT organization quickly and accurately assess where the source of the issue lies?

Simply put, with traditional tools, they can't. In the past, because of the complexity of their legacy systems, enterprises were frequently forced to settle for sub-optimal service monitoring, unacceptable TCO, and huge investments in staff time. Unfortunately, as outlined above, emerging trends are only going to exacerbate these penalties.

Section 3: The five requirements for gaining a unified monitoring perspective

In order to affordably and effectively address today's monitoring challenges, organizations need a monitoring solution that offers a truly unified perspective, one that offers several key capabilities:

- **An architecture that scales and extends to meet evolving challenges**. Any architecture built for this environment must have the following characteristics:

  – **High scalability**. The architecture must scale both within and across environments.

  – **A single, integrated set of components**. Approaches that require different components and products and integration among them, simply can't be deployed cost effectively in the hybrid environments of the future.

  – **High availability**. The architecture must be resistant to both component and communication failures.

  – **Rapid deployment**. The architecture must be fast and easy to deploy into all relevant environments.

- **Flexible and extensible data collection layer**. To monitor today's emerging computing environment, organizations need a means to collect monitoring data, wherever that data exists—including across disparate platforms, virtualized and non-virtualized environments, externally and internally hosted and managed systems, and SaaS and cloud environments. Data collection must be extensible to accommodate new metrics, whether power or facilities, or those driven by elastic and virtualized computing capabilities. The collection of information must present minimal overhead for the target systems and include the monitoring of log files. Lastly, the solution must be able to accommodate a combination of agent and agentless monitoring, depending on requirements and accessibility of systems.

- **Business service correlation across multiple computing infrastructures**. While ultimately comprised of an array of systems and infrastructures, in the end what really matters is the performance of the business service, whether that's e-commerce, email, or any other vital service a business relies on. Consequently, the monitoring data being generated across disparate sources needs to be intelligently analyzed and correlated in order to deliver service level insights.

- **Intuitive visualization and robust reporting capability**. All of the monitoring data being collected and aggregated needs to be useful. Toward that end, administrators and business management need visual, intuitive dashboards, alarms, and reports—and those views need to be based on real-time status. Further, views need to be tailored based on roles, so users get only the information they need or are authorized to see. IT operations groups must be able to deliver multi-tenant based portals, especially as they become more like service providers, delivering utility computing capabilities to groups of internal business customers.

- **A flexible business model**. Finally, without the right business model to support it, event the best solution won't be fully adopted. To be viable, a product must be supported by a flexible pricing structure, one that takes into account the differences in various deployment approaches. For example, if utilizing a managed service provider's infrastructure and monitoring services, the enterprise should not be forced to "pay again" for leveraging the monitoring information provided. Cloud monitoring must be effectively licensed on a "pay-as-you-go" basis, and internal clouds should not drive up monitoring costs just because of their flexibility.

Section 4: CA Nimsoft Monitor delivers a single view of the entire computing environment

CA Nimsoft Monitor is the most practical, cost-effective way to leverage a complete monitoring solution for today's and tomorrow's emerging computing environments. With CA Nimsoft Monitor, organizations gain the insights they need to cost effectively manage all business services and ensure they deliver the availability and performance required.

The CA Nimsoft architecture is a next generation, integrated architecture that delivers unprecedented infrastructure coverage, breadth of functionality, scalability, ease of deployment, ease of use, and extensibility. Via the CA Nimsoft portal application, organizations can get a complete view of the systems and services that underpin vital business services, whether those are based on any combination of virtualized infrastructures, SaaS offerings, cloud-based services, or outsourced environments. The CA Nimsoft architecture is shown in Figure C.

CA Nimsoft Monitor addresses these five key monitoring requirements:

- **An architecture that scales and extends to meet evolving challenges**. The CA Nimsoft Unified Monitoring architecture is based on a unique, one-of-a-kind message bus that uses a publish/subscribe framework. This architecture inherently delivers scalability, high availability, extensibility, and rapid deployment. By standardizing the communication between data collection, data aggregation, and data analysis, the architecture provides a single and extensible implementation across all computing components and infrastructures. With CA Nimsoft Monitor, there is no stitching together of multiple products and solutions as with other alternatives.

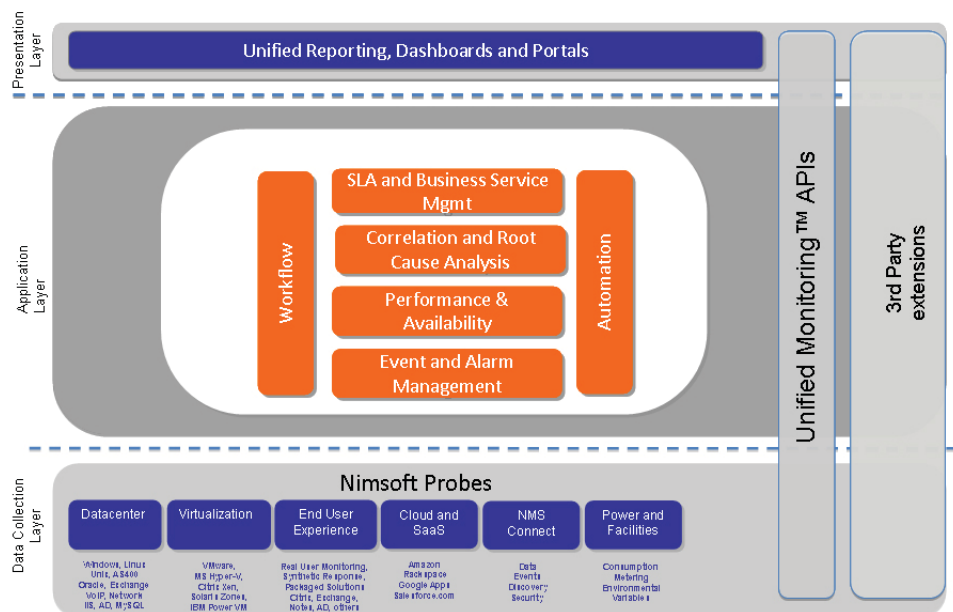## CA Nimsoft Monitor architecture: Business benefits

- Business Enablement. IT operations group is an enabler rather than a barrier to adoption of new technologies.

- Lowest total cost of ownership. CA Nimsoft customers can extend their 80% total cost of ownership advantage to new computing environments.

- Rapid time to value. Realized benefits in days rather than quarters or years across all computing environments.

- Control over third party commitments. Delivers complete visibility into the actual levels of service delivery.

- Optimize operational efficiency. Provides insight needed to optimize resources, planning, and investments.

- Boost service levels. More effectively control the performance of the services on which the business relies, across a range of computing environments.

- **Extensible data collection**. CA Nimsoft Monitor represents a single solution that can support the monitoring and management of the entire IT infrastructure today—and the emerging computing environments of tomorrow. Through CA Nimsoft APIs, new probes can be easily built and integrated into the architecture. This allows CA Nimsoft Monitor to easily extend to emerging cloud computing infrastructures, accommodate new metrics like power utilization, and support a host of new infrastructure components.

- **Business service correlation**. CA Nimsoft Monitor not only enables aggregation of monitoring data from disparate sources, but it enables the effective correlation of this data to provide an effective view of a business service—regardless of the number or type of systems or services on which it is based.

- **Intuitive visualization and reporting**. CA Nimsoft Monitor offers a means for organizations to fully leverage the monitoring data being gathered. The solution delivers the intuitive, sophisticated dashboards, reports, and alerts that enable fast analysis and provide real insights. Plus, CA Nimsoft Monitor makes it easy to tailor views and reports based on users' groups and roles. In addition, the solution comes out of the box with a full multi-tenant architecture, allowing for full customization, not only of reports, but even of entire portals.

- **Flexible pricing and licensing**. Because CA Nimsoft Monitor has been broadly deployed in both enterprises and in SaaS, cloud, and service providers' environments, CA has created a variety of flexible licensing and pricing models. In addition, CA Nimsoft Connect services allow for the sharing of data between customers (including service provider to enterprise and service provider to service provider) without requiring duplicate license purchases.

The CA Nimsoft Monitor architecture

Figure C.

The CA Nimsoft Unified Monitoring architecture is scalable and extensible across data, application, and presentation layers. CA Nimsoft Monitor is a single product implementation built on this architecture.

CA Nimsoft Monitor enables enterprises to fully exploit the benefits of cloud computing, virtualization, SaaS, and outsourcing—while enjoying these benefits:

- **Business enablement**. With CA Nimsoft Monitor, IT operations can deliver the appropriate monitoring of any IT infrastructure that the business may want to use. As a result, IT can become an enabler, rather than a barrier, to adopting new technologies.

- **Lowest total cost of ownership**. CA Nimsoft customers realize a total cost of ownership that is up to 80% lower than legacy systems management vendors—and they can now extend their monitoring to new computing environments, without having to make new product, staffing, or training investments.

- **Rapid time to value**. With the solution's extensibility and ease of deployment and use, organizations can deploy, and start enjoying the benefits of, the solution with unprecedented speed. With CA Nimsoft Monitor, customers realize benefits in days rather than quarters or years, across all computing environments.

- **Better control over third-party commitments**. CA Nimsoft Monitor delivers unprecedented insights into the actual levels of service delivery, providing vital evidence as to whether external service providers are meeting their service level commitments.

- **Optimize operational efficiency**. IT operations can reduce the time and cost associated with monitoring, while business and IT management can gain the insights needed to optimize resources, planning, and investments.

- **Boost service levels**. With CA Nimsoft Monitor, businesses can more effectively improve the performance of the services on which the business relies—and so boost business performance.

Conclusion

Virtualization, SaaS, outsourcing, and cloud computing can deliver real and meaningful benefits across a range of organizations. With the benefits of these emerging trends comes a corresponding increase in the complexity and criticality of monitoring service levels. In order to take advantage of the benefits of these emerging service delivery platforms—without encountering rapidly escalating costs and complexity—organizations need a monitoring solution that offers a truly unified perspective. CA Nimsoft Monitor delivers just such a solution. With the CA Nimsoft architecture, organizations can efficiently and cost effectively ensure today's and tomorrow's emerging computing platforms deliver optimal performance and reliability. As a result, CA Nimsoft Monitor enables organizations to take full advantage of the promise offered by emerging computing approaches, both today and in the long term.

For more information, visit ca.com/nimsoft.

CA Technologies (NASDAQ: CA) provides IT management solutions that help customers manage and secure complex IT environments to support agile business services. Organizations leverage CA Technologies software and SaaS solutions to accelerate innovation, transform infrastructure and secure data and identities, from the data center to the cloud. Learn more about CA Technologies at www.ca.com.

CS2903_0912