CA Unified Infrastructure Management Deepens its Visibility Into Cloud and Hybrid IT With Comprehensive New Capabilities

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Executive Summary

Hybrid IT and cloud architectures are key enablers of digital transformation, but IT operation will need the right tools to assure applications and service performance in these new environments. Hybrid IT combines a variety of legacy and next-generation technologies, which presents a conundrum for the IT organization. Do they combine their existing management and monitoring tools with new tools that address new technologies like containers, cloud, and software-defined infrastructure? Or should they take a more unified approach to IT operations but extend their existing monitoring tools?

For the sake of efficiency and operational effectiveness, Enterprise Management Associates (EMA) recommends that IT organizations extend the visibility of their existing tools whenever possible. This paper explores a leading option for that approach. With its Unified Infrastructure Monitoring (CA UIM) solution, CA offers a hybrid IT monitoring platform with visibility into traditional and next-generation technologies. CA UIM's modular architecture allows CA to extend visibility into new technologies on a continuous basis without reboots or software upgrades.

The Many Challenges of Monitoring Cloud and Hybrid IT Infrastructure

In today's digital economy, IT infrastructure is the backbone of a business. Infrastructure availability and performance directly affect the bottom line. In a hybrid IT environment that spans public cloud services, private cloud infrastructure, and legacy infrastructure, the failure of a single workload in the cloud or the failure of a single device in an enterprise data center can have a cascading deleterious effect on the health and performance of applications. IT organizations need infrastructure monitoring tools that can find the sources of these problems quickly, before application degradation kills productivity, impedes revenue generation, and tarnishes a company's brand.

However, IT infrastructure is continuously becoming more complex as enterprises adopt new technologies to enable digital transformation. For instance, they are deploying production applications on containers, they are installing converged infrastructure, and they are transitioning to new storage media, such as high-performance flash arrays. Enterprise Management Associates has seen evidence that a significant number of enterprisers are building private clouds with OpenStack. Enterprises need infrastructure monitoring tools that can extend their visibility into these new technologies.

Cloud technologies are inherently dynamic, so monitoring tools must be elastic and responsive to changes in cloud infrastructure.

As enterprises create hybrid clouds by combining their new private cloud infrastructures with IaaS and PaaS services from cloud providers like Amazon Web Services (AWS) and Microsoft Azure, they increasingly need monitoring capabilities that can span internal infrastructure and external, public cloud infrastructure. In particular, public cloud services introduce new demands for dynamic infrastructure management. First, IT operations must monitor the cloud environments themselves and then the applications and services that run on top of them. These cloud technologies are inherently dynamic, so monitoring tools must be elastic and responsive to changes in cloud infrastructure. If the enterprise bursts into the cloud, the monitoring tools must be ready to burst, too. Given that cloud providers charge daily or hourly rates for workloads, enterprises must also be efficient with their use of the public components of their hybrid clouds. Their monitoring tools should be able to tell the IT organization whether it is maximizing its use of public cloud resources. With proper monitoring, the IT team can make informed decisions about expanding or shrinking its public cloud footprint.

A Status Quo Approach to Hybrid Cloud and IT Infrastructure Monitoring Doesn't Work

When an IT organization adopts an entirely new type of technology, it is often tempted to procure specialized management tools to operationalize these new components. For instance, IT operations will acquire a new monitoring tool with visibility into Docker containers or an OpenStack cloud. It might also install a product aimed at monitoring a specific public cloud provider, such as AWS. This piecemeal approach to management tooling often leads to a fragmented and overcrowded monitoring toolkit. In its research and interactions with the IT operations professionals, Enterprise Management Associates research found that many enterprises rely on dozens, if not scores, of individual tools to monitor and troubleshoot applications and services. When an IT team assembles multiple point tools like this, it is usually making a grave mistake.

Adding more monitoring tools to gain visibility into new infrastructure inevitably adds complexity. First, IT operations must devote resources to learning how to use new monitoring tools. Then it has to devote resources to maintaining them. As IT operations assemble a disparate set of specialized management tools to monitor the health and performance of each of the elements in its infrastructure, the workflows it develops with such tools are inherently inefficient. Administrators will find themselves logging into countless tools to find the answers they seek, when a more efficient organization might require them to log into one tool. These heterogeneous approaches to management also present visibility gaps between individual tools. Often, IT operations lacks a higher-level understanding of interdependencies among each management domain, which makes it difficult to detect application service problems, let alone identify their root causes.

93% of enterprises plan to use new tools to monitor cloud-based and hybrid applications and 40% say it is more difficult to support performance problems for cloud-based applications.

Cloud adds more hurdles to the IT management field. It is difficult enough to wrangle a fragmented management toolset to monitor and troubleshoot the health and performance of infrastructure that sits under one roof, wholly owned by a single IT organization. When applications, services, and business processes span traditional infrastructure, private clouds, and public clouds as they do in hybrid IT environments, performance monitoring and management becomes even more complex. In unpublished research from 2015, EMA asked enterprises to name the top challenges they encounter when managing cloud performance. Difficulty with cloud troubleshooting performance issues topped the list, with 41% identifying it as one of their biggest problems. A significant number of enterprises also said that poor visibility into network performance (29%) and poor visibility into application performance (21%) were major issues in the cloud. Furthermore, 40% of these enterprises told EMA that it is more difficult to solve performance problems for cloud-based applications and workloads than it is for traditional, non-cloud environments. Ninety-three percent (93%) of these enterprises said they were using or plan to use new tools with visibility into cloud and non-cloud environments to monitor cloud-based and hybrid applications. Again, EMA would advise these companies to extend their existing tools first to avoid complexity.

Unified Infrastructure Monitoring Can Meet the Challenge of Hybrid Infrastructure Management

IT operations needs a more unified approach to infrastructure monitoring. As IT infrastructure becomes more complex, hybridized IT organizations should strive to keep their management systems simple and unified. By doing this they can establish an understanding of the interdependencies among the various infrastructure layers that comprise applications and services in today's hybrid clouds. Otherwise, IT Operations might find itself struggling with situations where a single device failure can set off hundreds of alerts across dozens of monitoring tools. By consolidating tools and avoiding these alert storms, an IT organization can accelerate its mean time to insight and mean time to resolution. Enterprises should consider a unified platform for monitoring the health and performance of multiple technology domains to avoid operational complexity.

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CA Unified Infrastructure Monitoring (UIM) provides a robust platform for monitoring the entirety of today's cloud and hybrid IT infrastructure environments. It already provides deep insight into server, hypervisors, Databases, storage, packaged applications, networks, and the cloud from one console. Meanwhile, CA is constantly expanding the breadth and depth of CA UIM's visibility

CA UIM Delivers Most Comprehensive Capability for Cloud and Hybrid IT

Most recently, CA added several new UIM probes that expand the tool's visibility into several technologies that enterprises are adopting for hybrid infrastructure. First, CA has added a Docker probe that monitors a Docker container environment and the processes or services running on the containers. CA added a probe for Nutanix Enterprise Cloud, a converged infrastructure solution. The Nutanix probe monitors the health and availability of Nutanix clusters, hosts, VMs, storage pools, containers, and disk components. With a new PureStorage probe, UIM can monitor performance and usage of PureStorage FlashArray storage systems, which are a critical piece for building scalable private cloud storage. Finally, CA introduced a new probe for monitoring the health and performance of OpenStack-based private clouds.

CA also enhanced its visibility into the public cloud by enhancing CA UIM's AWS probe with support for several new AWS services, including DynamoDB, Route53, and ECS. The AWS probe also has the ability to monitor and alert on AWS billing, which will help IT control costs and manage capacity. Additionally, CA enhanced the usability of CAUIM's AWS monitoring, including a workload tagging scheme in UIM that matches the tagging scheme enterprises used in AWS. This enhancement will streamline workflows. (These new enhancements give CA UIM industry-leading visibility into a wide variety of infrastructure components and cloud services that are in use in today's hybrid IT infrastructures.)

Single Monitoring Solution for Hybrid Cloud Environments

CA UIM can monitor traditional infrastructure, private cloud, and public cloud in one IT operations console. In the public cloud, UIM can proactively monitor SLAs, performance and user experience of the cloud environment and the services running on them. CA UIM's performance management capabilities can validate cloud workload migration by revealing performance before and after the workload has migrated to the cloud. It can also conduct performance trending and analysis for root cause analysis and future resource planning, which is essential for cost optimization. The solution also provides template based configuration, which allows an enterprise to deploy monitoring rapidly in highly elastic cloud environments

CA designed CA UIM so that there is no barrier to adding new monitoring capabilities as they become available. CA UIM has an open architecture with a single back-end message bus that integrates multiple monitoring capabilities via a publish-and-subscribe model. This architecture makes it easy for IT organizations to customize new monitoring probes. In fact, many CA UIM users created their own AWS probes before CA released productized versions. Infrastructure teams can also leverage CA UIM's APIs to extend and automate monitoring deployment and to establish triggers for automated problem remediation or provisioning of new cloud instances on demand.

CA UIM probes are also independent of core product releases, which eliminates any barriers to the adoption of new monitoring capabilities. When CA adds a new probe to the UIM library, an IT organization only needs to update its probe inventory. The core UIM product doesn't need an update so there is no reinstallation. With these updated probes, an IT organization can start monitoring Docker, OpenStack, PureStorage, and Nutanix, and deepen its monitoring of AWS today without upgrading CA UIM.

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This architecture is important to public cloud monitoring because cloud providers continuously update and enhance their infrastructure and services, which can require frequent updates to a probe. When the probe can be updated without disrupting the core management platform, IT is able to extend visibility pain-free.

It is also important to manage the health and performance of the networks that connect and scale hybrid cloud environments. EMA research has shown that many enterprises are now leveraging software-defined networking (SDN) and network functions virtualization (NFV) to build these new cloud network. CA has created the Virtual Network Assurance (CA VNA) that complements CA UIM gateway and enables SDN and NFV management and monitoring.

EMA Perspective

No IT organization starts with a blank slate today. If one could do so, perhaps IT operations would be much simpler. Instead, IT organizations are dealing with increased complexity as they combine legacy infrastructure with public, private, and hybrid cloud technologies. Older technologies now coexist with OpenStack, Docker containers, AWS, and much more. The typical IT organization will struggle to support these new elements with its existing infrastructure management tools and practices. In fact, it will be tempted to acquire several new management tools to account for new hybrid infrastructures. While some IT organizations can succeed by adding new tools to monitor the health and performance of each new technology, EMA believes that many businesses will struggle with this piecemeal approach.

Instead, enterprises should explore ways to adopt a unified approach to IT monitoring, with platforms that can span multiple technology domains and multiple clouds. An end-to-end view of the entire infrastructure footprint, from internal legacy infrastructure out to the public cloud, can reveal the technology interdependencies that dictate whether applications and services are performing at a satisfactory level.

With new probes that enable visibility into OpenStack, PureStorage flash arrays, Docker containers, and Nutanix hyperconverged infrastructure and deeper visibility into AWS, CA is staying at the forefront of Cloud hybrid IT monitoring with UIM.

CA continues to expand the robust monitoring capabilities of CA UIM, a leading platform for monitoring an enterprise's entire IT environment from legacy architecture to cutting edge hybrid clouds. With new probes that enable visibility into OpenStack, PureStorage flash arrays, Docker containers, and Nutanix hyperconverged infrastructure and deeper visibility into AWS, CA is staying at the forefront of Cloud hybrid IT monitoring with UIM.

About CA

CA Technologies (NASDAQ:CA) creates software that fuels transformation for companies and enables them to seize the opportunities of the application economy. Software is at the heart of every business in every industry. From planning to development, to management and security, CA is working with companies worldwide to change the way we live, transact, and communicate across mobile, private, and public cloud, distributed, and mainframe environments. Learn more at www.ca.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 EMA's 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, Facebook or LinkedIn.

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