How you deploy and host applications is changing

To meet the growing challenges of a competitive world economy, a digital transformation is taking place. Organizations realize that to be competitive they need to be more agile. They need to reach their customers wherever they are. They need to be able to scale their applications to meet customer demand.

Applications are being containerized

To meet this challenge, organizations are deploying new micro-services applications that are changing the application delivery environment. These applications are agile. New features can be added without disrupting the application in production. No long rollouts are required like before. These applications automatically create instances in response to increasing user demand. Micro-services are changing the way that applications are deployed and managed. However, the old applications are not going away. Services for new and old applications both need to be managed.

Applications are moving to the cloud

At the same time that organizations are deploying new micro-services applications, they are changing where they host their applications. They are increasingly choosing the cloud. By using the cloud, they can better manage their infrastructure costs, as they only pay for what they use. They are better able to scale their applications because they can use infrastructure on demand.

As a result of these changes, applications will be both in the local data center and in the cloud. These applications will be both micro-services and older three-tier types. All of these applications need the benefit of an application delivery platform to increase their performance, availability, and security. This situation presents challenges for the application delivery solution.

The ADC management system needs to adapt

To manage this transformation to new applications, you need to be able to apply ADC services to both types of applications. You need to be able to manage your ADCs in both locations. You want consistency of capabilities across application types and locations. The new applications require an agile infrastructure to support them. You need automation capabilities from your ADC.

This new hybrid cloud model and application environment adds complexity. It means that organizations need to maintain traditional IT practices to deal with existing applications while at the same time developing agile IT practices. Organizations need to be data driven and not just reactive. To manage applications in this environment requires insights into application performance across application types and locations.

Complexity and quality of data generated across the hybrid cloud presents both an opportunity (data-driven management of all aspects of app management) and a challenge (a need for machine intelligence and analytics to manage the data).

NetScaler MAS delivers the ideal application delivery environment

NetScaler Management and Analytics System (MAS) is a centralized management solution that simplifies operations by providing enterprise-wide application visibility and automation of management jobs that need to be executed across multiple NetScaler instances.

MAS is for IT administrators who need to manage multiple NetScaler instances for their traditional three-tier applications. It is also for DevOps practitioners who want to make the transition to agile IT. And it is for network architects who want to migrate to micro-services applications.

Administrators can use MAS to manage, monitor, and troubleshoot the entire global application delivery infrastructure from a single, unified console. MAS enables IT administrators to troubleshoot as well as proactively monitor application issues in a matter of minutes.

MAS enables business initiatives

MAS enables the move to DevOps by supporting traditional IT practices and agile IT from the same platforms with CLIs, GUIs, and APIs.

MAS enables the move to containerized micro-services applications by supporting NetScaler CPX and enabling its instantiation by container management tools like Docker, Kubernetes, and Mesosphere.
MAS supports the move to scale out application architectures with automated deployment and configuration of NetScaler instances through integration with cloud platforms.

MAS supports the transition of IT into a business enabler by providing end-to-end analytics with actionable insights so that IT can understand application behavior and better respond to the business.

**Benefits of using NetScaler MAS**

- **Agility:** MAS provides the ability to add, remove, and launch workloads, as well as scale workloads quickly.
- **Operating expense reduction:** Experience lower cost of operations and permit existing staff to support significantly more application workloads.
- **Improved user experience:** Analytics identify problems across the application delivery environment and alert with actionable insights so that issues can be resolved before they impact users.
- **Frictionless multi-cloud (hybrid cloud):** Lower the barrier to support workloads on premises and off premises across different cloud providers.

**Capabilities of NetScaler MAS**

**Fleet-wide configuration and management**

NetScaler MAS provides all of the necessary capabilities to configure and manage NetScaler instances, including methods to automate commonly performed tasks. This includes the ability to bootstrap a NetScaler instance and apply a networking configuration such as an IP address, a user license, and software upgrades. These tasks can be done for all NetScaler platforms (CPX, VPX, SDX, MPX) and CloudBridge SD-WAN platforms. NetScaler MAS provides SSL certificate and key management and gives you updates on their status, including which CA is being used, what the expiration dates are, and key strength. Issuing and implementing new certificates is automated by MAS. MAS can automate NetScaler functions using templates called StyleBooks, which are sets of tools to improve speed and accuracy for all configuration and lifecycle management tasks across a fleet of NetScaler instances.

In addition, NetScaler MAS can manage other components of the application delivery environment including open-source load-balancers such as HAProxy.

**End-to-end visibility with actionable analytics**

MAS gives you a view across all of your NetScaler devices from the endpoint to the data center. Everything is centralized in one console with an application-centric view. Periodic health checks are performed to keep tabs on the state of your equipment. Analytics enable you to take action based on alerts that provide visibility into real situations in your network. You gain ease of identifying and addressing issues with an end-to-end view of your user connection. MAS collects fine-grained information from the transaction level and the device level. MAS can correlate data and model traffic patterns and model device behavior. It can do anomaly detection and find outliers to help you anticipate and intercept problems. MAS can query the data for actionable items for you to remedy. Analytics can be used for capacity planning so that you keep on top of your application requirements.

**Support of containerized micro-services applications**

With MAS, you can have the same management system across traditional applications and new containerized applications. MAS supports all NetScaler form factors including VPX for VM environments and CPX, which can run as a Linux container. MAS is fully integrated with the leading container orchestration and service discovery platforms, including Docker, Kubernetes, and Mesosphere, as well as the Mirantis and Red Hat OpenStack distributions. When a micro-services application gets deployed, MAS detects it and does a discovery that starts the service creation process. MAS manages the process of applying application delivery functions for the applications. This allows the entire infrastructure to be automatically configured and dynamically react to any changes in the requirements of the applications.

**Manage hybrid cloud environments**

MAS is integrated with the multiple cloud management platforms that NetScaler is available on. This includes all the top IaaS clouds including Amazon Web Services (AWS), Microsoft Azure, and SoftLayer. MAS can seamlessly manage a distributed cluster of NetScaler instances across multiple locations. These capabilities make NetScaler the only cloud-ready ADC platform.

**Manage free and open-source LBs with MAS**

Many organizations are using free and open-source load balancers like HAProxy. These systems lack management systems and even a CLI or GUI. This makes managing them problematic. Even if you used a third-party management system for these systems, you would have two systems to manage: one system for your NetScaler devices and another for your free and open-source systems. You really need a single pane of glass to manage both. This way you’ll have a complete view of your environment across all devices with a central console to overlook the state of the inventory and manage your devices.

**Manage applications, not infrastructure**

StyleBooks present an object-oriented configuration model that breaks the glass between service, apps, and infrastructure for traditional and agile IT operating environments.

Configuration jobs provide a way to easily script and automate configuration tasks of any kind.

Certificate automation provides tools for centrally managing, deploying, and configuring SSL certificates across a pool of load-balancing capacity.

A common API serves as a common interface between hardware, multitenant, virtual, container, and multi-cloud deployments driven by a common code base.

Enable northbound integrations with multiple orchestration and automation systems, such as OpenStack, Puppet, Cisco ACI, VMware NSX, Mesos/Marathon, and others.

**Data-driven insights**

LogStream: Multi-cloud-friendly log aggregation at scale for transactions, counters, and system logs. Per-transaction visibility, reporting, and rollups. Easily identifies errors and segments by application, and provides visibility into transaction performance.

**Web Insights:** Per-transaction visibility, reporting, and rollups. Easily identifies errors and segments by application, and provides visibility into transaction performance.
SSL Insights: Per-transaction visibility, reporting, and rollups for SSL metadata. Easily identifies incorrect ciphers and segments by application, and reports performance.

Anomaly Detection: Scans for anomalies in log and counter data across all configured applications and automatically highlights errant configurations.

Manage and control access to different types of users with role-based access based on applications.

How NetScaler MAS stacks up

Here are the essential capabilities delivered by NetScaler MAS for efficiently managing delivery of your applications:

• Provides centralized management of NetScaler devices across the entire environment
• Delivers analytics and monitoring and reporting capabilities so you get a complete view of your device performance
• Is available on public cloud platforms including AWS, Azure, SoftLayer, and Google Cloud Platform
• Integrates with private cloud orchestration platforms including OpenStack and CloudStack
• Integrates with container management systems including Docker, Kubernetes, and Mesosphere
• Provides automation for configuration and common tasks

Summary

NetScaler MAS enables the next generation of infrastructure management without compromising existing investments. MAS makes NetScaler a part of the application architecture. It provides a data-driven system where application requests become infrastructure requests. MAS provides feedback through analytics to speed application troubleshooting and tune performance. MAS can aggregate traffic-flow data across the infrastructure and provide insights into applications and specific situations. Administrators can see where their NetScaler instances are deployed. They can do anomaly detection and see if problems exist. Alerts ease troubleshooting.

MAS is designed to help organizations adapt to the changing needs of their applications while reducing costs. Tasks are automated with templates and scripts. As organizations move to Linux containers and micro-services applications, NetScaler can still be their ADC, while giving them the ability to also manage and scale their legacy infrastructure. MAS can even manage third-party load balancers. As organizations move to hybrid cloud deployments, MAS enables networking infrastructure to be managed uniformly across multiple public and private clouds.

For more information

We encourage you to reach out to your Citrix representatives to learn more about MAS, or visit the following:

MAS on Citrix.com:

Detailed product documentation:

NetScaler MAS download page:
https://www.citrix.com/downloads/netscaler-mas/