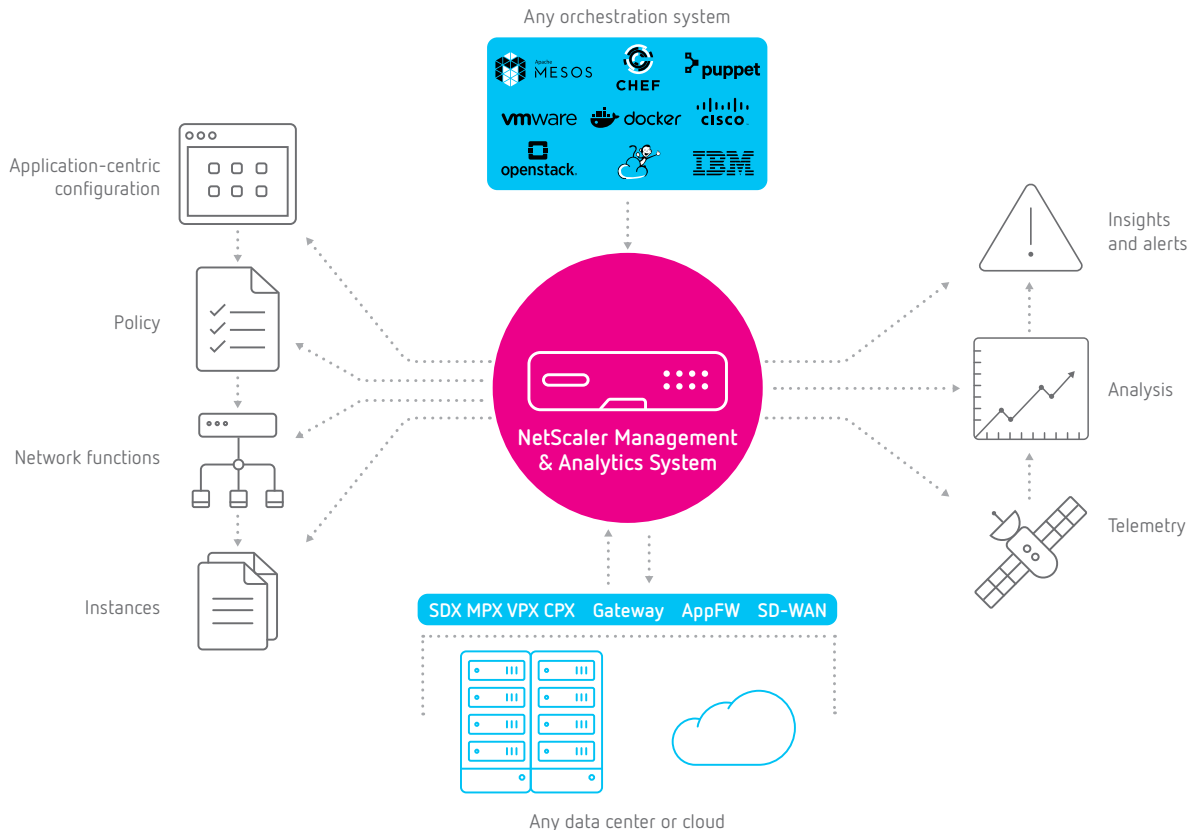# CiTRIX®

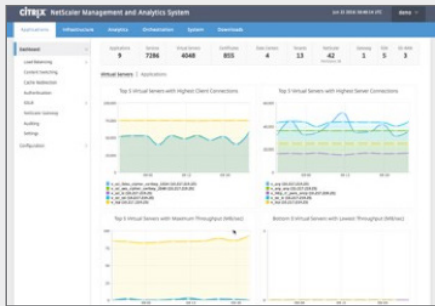# NetScaler Management and Analytics System (MAS)

NetScaler MAS provides centralized network management, analytics, automation, and orchestration to support applications deployed across hybrid cloud and containerized infrastructures. From a single platform, admins can view, automate, and manage network services across their entire infrastructure.

Applications are changing

As organizations face the ever-changing challenges of competing, a transformation is taking place in the way that applications are developed and deployed. Applications drive the business, and downtime means lost productivity and lost revenue. Organizations realize that they need to be able to scale their applications to meet customer demand. They need to be able to innovate rapidly. As a result, they are deploying applications in the data center and in the cloud. They are developing new micro-services applications. They are adopting automation for IT workflow. They are integrating with SDN systems.

Any orchestration system

Application-centric configuration

Policy

Network functions

Instances

NetScaler Management & Analytics System

Insights and alerts

Analysis

Telemetry

SDX MPX VPX CPX   Gateway   AppFW   SD-WAN

Any data center or cloud

Key benefits

- Centralized management for all NetScaler appliances and instances

- Application-centric view of network services infrastructure

- Logging and analytics to provide actionable insights

- Automated provisioning of NetScaler services

- SSL certificate management to minimize access disruptions

- Configuration templates to simplify application deployment

- Integrated with third-party orchestration platforms

- Scheduling of firmware upgrades with no downtime

- Support for multi-cloud and hybrid environments

- Comprehensive role-based access to different groups and users

Application management needs to adapt

Changes in application architectures are prompting the need for a change in application delivery services technology. As applications become more complex, maintaining availability and troubleshooting become more difficult. As applications are hosted in the cloud, visibility and management of the service delivery infrastructure becomes more difficult.

It's time for an application delivery management solution that meets the needs of modern applications.

The management solution must provide consistent control and visibility as you transform your network and move to the cloud, so that you can:

- Maintain the performance and availability of your applications.

- Deploy and automate application services across any cloud.

- Develop and deploy micro-services-based applications.

Harness network data for troubleshooting

To support your applications, the management platform needs to harness the data in the network so that you can drive and maintain a better customer experience. To maintain application availability, you need to be able to proactively identify issues and fix them fast before your users notice any performance drops. You need to be able to detect and address security threats before they impact access to the application. You need a way to do planning so that you always have the capacity and resources that your applications need.

These days an application runs on a host of infrastructure. Your ADC management platform should give you a comprehensive application-centric view across your infrastructure so that you can know the availability and performance of back-end systems. It should provide the capability to capture network configuration details for an application in a template that can be used to rapidly deploy the application delivery services.

You should be able to use this mapping of applications to infrastructure throughout the lifecycle to drive app-centric performance management, troubleshooting, and security. Your management system should provide role-based access to the application infrastructure for developers and admins so that duties can be properly carried out and access properly contained. To enable a holistic infrastructure for deploying applications, your management system should access external systems via APIs.
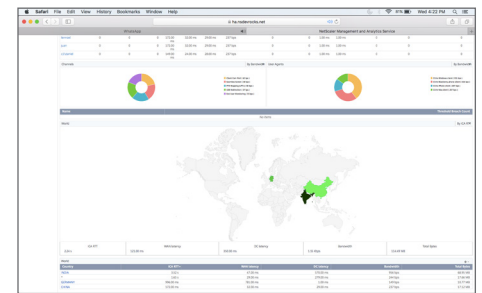
Automate workflow

Automation of IT workflow is essential to increasing agility. An ADC management platform should let you automate all the tasks that you need to manage your application delivery infrastructure. It should be possible to automate configuration management for your ADC devices. You should be able to configure event management to provide alerts that let you proactively monitor device and application status. Certificate management should alert you to the status of your certificate expiration. License management should automate license allocation across your infrastructure. To enable fully automated deployment, the management system should integrate with cloud orchestration systems and SDN fabrics.

What's New in MAS 12

Application Centric Analytics

MAS has been enhanced to provide insight into the performance and security of the application delivery infrastructure from an application perspective. By defining how the applications map onto the ADC configuration it becomes much easier to determine the state of an application and use the application centric approach to more easily collaborate with the application owners.

Application health score

The new application health scores summarize how well an application is performing based on industry standard APDEX scoring of user satisfaction, as well as other performance metrics and assessment of security threats.

Application dashboard

The application dashboard integrates the application health score and threat visibility enhancements to provide a powerful dashboard to permit the management of all aspects of application performance.

Activity investigator

Activity Investigator functionality allows access to the application performance metrics plus server and NetScaler resource details.

Stylebooks for applications

New stylebooks are available to accelerate deployment and setup of NetScaler features for applications such as Microsoft SharePoint.

CICO Licensing

Check-in/Check-out licensing is available for NetScaler VPX to provide licensing flexibility for on-premises and cloud deployments.

Third-party device management

NetScaler MAS can manage and monitor HAProxy instances across the environment.

Enabling data center automation

NetScaler MAS provides seamless integration with many of the leading orchestration platforms that enterprise customers are deploying to automate their data center infrastructure. As the data center evolves toward a software-defined model, automation of supporting services becomes increasingly important.

- API-driven in order to enable orchestration and analytics across many third-party platforms
- Management and orchestration of containerized services
- Automation of NetScaler lifecycle management and provisioning

Delivering data-driven analytics

NetScaler MAS serves as a critical tool for managing the performance of applications served

by NetScaler. Application-specific insights are provided to the admin for ensuring performance and reliability.

- Log aggregation at scale (thousands of instances)
- Comprehensive set of insights on customer usage and behavior
- Per-transaction visibility, reporting, and roll-ups to easily identify errors and visibility into transaction and application performance
- Key insights into web traffic, security, SSL, HDX, and remote VPN sessions

Simplified network administration

NetScaler MAS delivers visual dashboards that provide a high-level overview of all deployed NetScaler instances. Events can be proactively monitored to get ahead of potential application disruptions and issues.

- Centralized management and configuration across all instances from a single dashboard
- Scheduling for software upgrades across all NetScaler instances
- SSL certificate management for renewals and policy enforcement
- Configuration jobs and templates to simplify repetitive administrative tasks
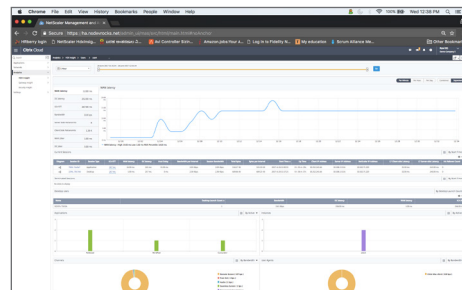
Application-centric lifecycle management

- Simplification of application deployments with NetScaler for developers where configuration details are abstracted

- Role-based access for developers to NetScaler configurations to empower developers, and reduce the burden on infrastructure operations to manage these requests
- Application-oriented templates that enable developers to easily implement functionalities in NetScaler
- Role-based partitioned access to application developers and owners
- Declarative application configurations and templates built in the GUI as NetScaler stylebooks
- Curated application stylebooks that can be sourced from the community

Platform and location independence

NetScaler MAS provides support for NetScaler deployed in any form factor, on premises or in the cloud. Deployments are abstracted as instances that can span across physical appliances or commodity servers, and are highly scalable.

- Centralized management for NetScaler MPX, SDX, VPX, CPX, and SD-WAN
- Supports deployments across on-premises or cloud-based hosts

Other capabilities

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, which 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 (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'd have two systems to manage: one system for your NetScaler devices and another for your F/OSS systems. You really need a single pane of glass to manage NetScalers and F/OSS systems. 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. The NetScaler MAS HAProxy Application Dashboard provides a real-time view of all the front ends monitored by NetScaler MAS. The dashboard lists the front ends as discrete applications and shows transactions, throughput, and sessions information about the applications.
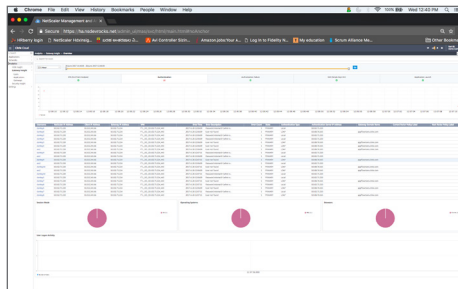
Licensing

NetScaler MAS is deployed as a virtual machine. Infrastructure management and orchestration of NetScaler products can be implemented without incurring any licensing or subscription fees. NetScaler MAS is licensed as follows:

- Annual subscription basis (single and multi-year)
- Licenses are packaged in instance packs of 100 VIPs
- Advance features will require a subscription license for above 30 VIPs

Feature	Free	Paid license*	Command center equivalent
Inventory management			
Infrastructure dashboard	•		•
Instance groups	•		•
Instance dashboards	•		
Grouping by sites	•		
Backup and restore of instances	•		•
Event management	•		•
Syslog aggregation	•		•
Role-based access			
Instance-level RBAC	•		•
vServer-/App-level RBAC	•	•	•
External authentication	•		•
Configuration management			
Configuration jobs	•		•
Configuration audit	•		•
Configuration advice	•		
Network reporting			
Instance-level reporting	•		•
vServer-level reporting	•	•	•
Network functions			
Visibility and management per vServer/service/server	•	•	•
SSL certificate management			
SSL Enterprise Policy	•		
Monitor certificate expiration	•		•
Install/CSR/Link/Unlink certificates	•		•
Netscaler SSL certificate charts (key strength, issues, signature algorithm charts)	•		
SSL Virtual Server charts (protocol distribution)	•	•	
Stylebooks			
YAML configuration templates	•		

Feature	Free	Paid license*	Command center equivalent
License server			
Support for pooled-based licensing	•		
Third-party load balancer support			
Discovery of HAProxy host, instances, front end, back-end servers	•		
View HAProxy configuration	•		
Edit/back up/restore HAProxy configuration	•		
Soft/hard restart of HAProxy instances	•		
Orchestration			
OpenStack LBaaS integration: Pre-provision of NetScaler instances	•		
OpenStack LBaaS integration: Auto-provision of NetScaler instances	•		
OpenStack Heat integration: Pre-provision of NetScaler instances	•		
OpenStack Heat integration: Auto-provision of NetScaler instances	•		
VMware NSX integration: Pre-provision of NetScaler instances	•		
VMware NSX integration: Auto-provision of NetScaler instances	•		
Cisco APIC integration: Service policy mode	•		
Cisco APIC integration: Network policy mode	•		
Cisco APIC integration: Services Manager mode	•		
Cisco APIC integration: Windows Assure pack	•		
Container orchestration: Integration with Mesos/Marathon	•		
Container orchestration: Integration with Kubernetes	•		
Application analytics and management**			
Application management		•	
Application performance dashboard		•	
Application security dashboard		•	
Analytics			
Web Insight		•	
HDX Insight		•	
Gateway Insight		•	
Security Insight		•	
SSL Insight		•	
TCP Insight		•	
HAProxy application management**			
Application dashboard for HAProxy		•	

• Paid license is required if running versions prior to 12.0.

* Paid license is required for deployments with greater than 30 vServers. Functionality is provided free of charge for fewer than 30 vServers.

** Not supported on versions prior to 12.0.

System requirements

XenServer

- XenServer 5.6 or later
- RAM: 8 GB
- Virtual CPU: 4 (8 recommended)
- Storage: 120 GB (500 GB recommended)
- Virtual network interfaces: 1

XenCenter

- Windows 7, Windows XP, Windows Server 2003, or Windows Vista
- NET Framework version 2.0 or later
- RAM: 1 GB minimum (2 GB recommended)
- Network interface card (NIC): 100 Mbps or faster

VMware

- ESXi 4.1 or later
- RAM: 8 GB
- Virtual CPU: 4 (8 recommended)
- Storage: 120 GB (500 GB recommended)
- Virtual network interfaces: 1
- Throughput: 1 Gbps or 100 Mbps

Linux KVM Host

- CPU: 64-bit x86 processor with hardware virtualization included
- AMD-V or Intel VT-X
- RAM: 16 GB
- Storage: 600 GB

Linux Guest

- RAM: 8 GB
- Virtual CPU: 4 (8 recommended)
- Storage: 120 GB (500 GB recommended)
- Virtual network interfaces: 1
- Throughput: 1 Gbps or 100 Mbps

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