

NetScaler for hybrid cloud architectures

Enterprise businesses are embracing the public cloud. However, few are willing to take the plunge and move to an exclusively cloud-sourced model. Instead, they're adopting a hybrid approach to balance on-premises investments with capacity in the cloud when and where it makes sense.

Many enterprise businesses have begun either sourcing applications as a SaaS-based offering or migrating selected applications to the cloud. While on-premises applications have historically benefitted from application delivery controllers (ADCs) such as Citrix NetScaler to provide increased resilience, performance, and security, once applications move to the cloud, their role becomes more uncertain. IT is faced with new challenges and requirements to manage and support applications across a hybrid cloud architecture that consists of public cloud and on-premises infrastructure.

Increased complexity

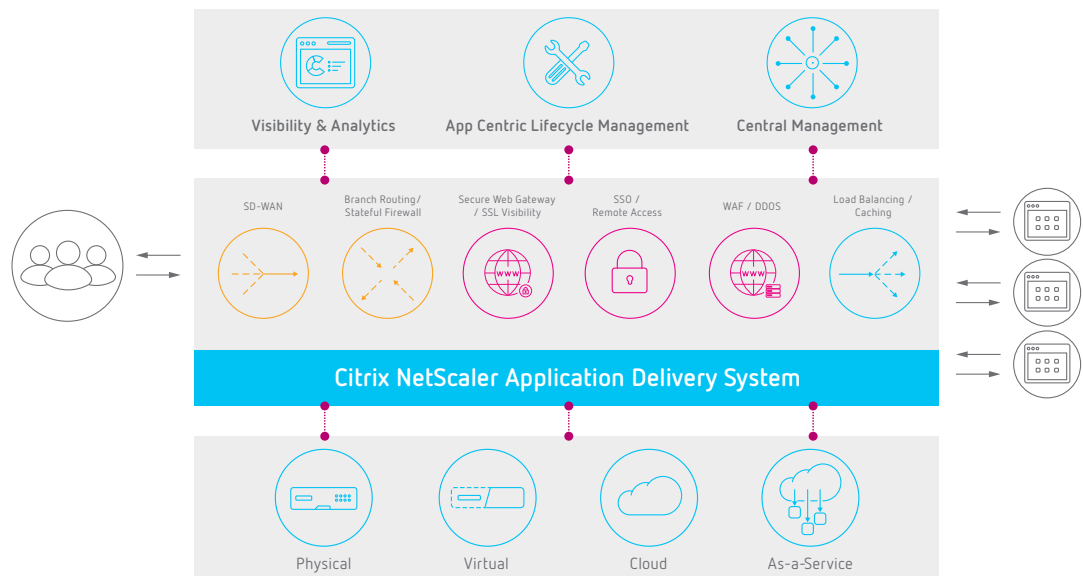
Managing infrastructure that can reside on premises and in the cloud can create additional complexity for IT operations.

Managing multiple toolsets and processes to troubleshoot applications is cumbersome and prone to error, and creates excessive operational overhead for administrators. Cloud providers can supply integrated tools to help manage in-domain workloads, but don't extend support for workloads deployed either on premises or with another cloud provider.

Vulnerabilities to outages

Public clouds are susceptible to outages despite stringent SLAs. Enterprise IT is at the mercy of the cloud provider to remedy any issues to restore services. While many large providers are able to keep the disruption to their customers to a minimum, the risk still looms large, and many enterprise businesses must have a definitive contingency plan in place for these types of events.

Management and Analytics



Automating on-premises infrastructure

The cloud has served as a catalyst for the enterprise to automate routine tasks and workflows in the data center. This is easily attained in the cloud, where everything is driven in software. Conventional on-premises infrastructure, however, can be more challenging to transition toward a digitized workflow.

How Citrix NetScaler delivers in a cloud-first world

NetScaler is a software-based platform of solutions that can improve the delivery of applications from any cloud. It encompasses an array of services that can ensure the availability of server resources, multicloud availability, application security, performance, and WAN reliability. NetScaler can be deployed as a VM in the cloud, in a container, as a service from Citrix Cloud, or on custom hardware—all leveraging the same software code base to simplify instrumentation and configurations across a heterogeneous environment.

Application delivery requirements for hybrid cloud and SaaS

As application topologies continue to evolve to the cloud, enterprise IT organizations must

take account of their existing application delivery solutions and determine how best to leverage these investments with an eye to the cloud. Many enterprise organizations are assessing how they can transform their networks to simplify their migration to the cloud with the following requirements in mind:

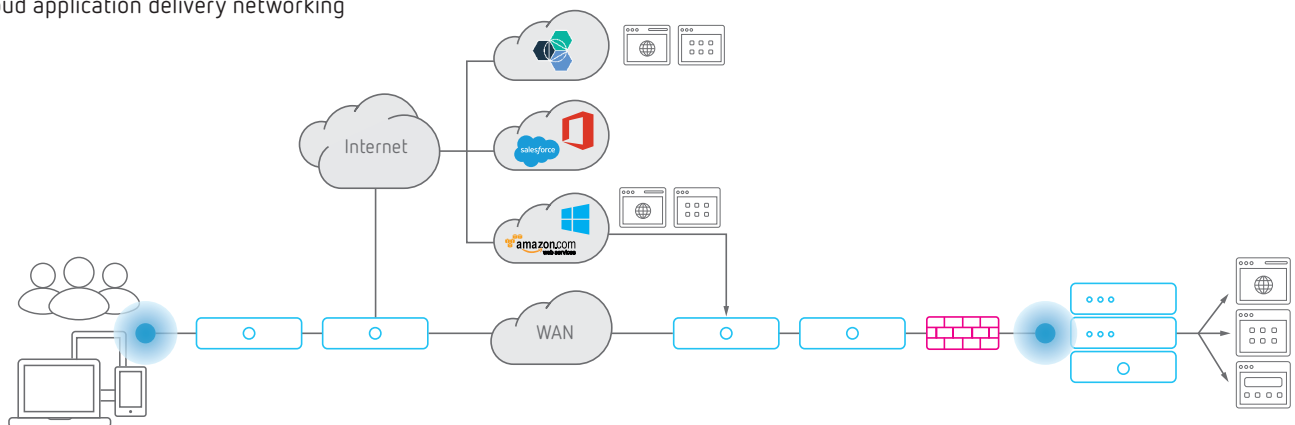
- Reliable connectivity across all managed sites
- The ability to harness application-level intelligence and analytics across on-premises and multicloud environments
- Identity-centric security models that enable a user-centric security perimeter across the cloud

NetScaler ADC

NetScaler ADC serves as a software-enabled proxy for applications deployed either on premises or in the cloud to increase resilience, performance, and security. NetScaler ADC is built to provide cloud-native functionalities that include:

- **High-performance virtual appliances** that support up to 3 Gbps, available in both Azure and AWS. NetScaler can also be deployed in the cloud to terminate encrypted traffic, with high-performance support for ECC ciphers. This minimizes the number of VMs that need to be deployed when compared to other lower performing offerings available in the cloud.

Hybrid cloud application delivery networking



Increasing complexity of hybrid cloud environments



- Virtual WAN
- WAN optimization



- Multi-factor authentication
- Single sign-on
- Web app firewall
- Secure web gateway
- DDoS protection



- Application monitoring
- Advanced analytics



- Load balancing
- Global server load balancing
- TCP optimization
- Caching

- **Simplified configurations** for newly provisioned instances when supporting increasing application workloads. NetScaler leverages auto-bootstrapping that enables each instance to self-configure, minimizing the time an admin needs to dedicate to initial setup. In addition, when deployed in an AWS environment where Auto Scaling is implemented, AWS Lambda functionalities are leveraged to incorporate templated configurations to support load balancing and SSL termination.
- **Support developer environments** and container management platforms such as Kubernetes. NetScaler can be deployed to serve as an ingress proxy, facilitating external access to containerized applications. NetScaler can also be deployed as a container-native service, replacing Kube proxy to facilitate inter-container transactions.
- **Flexible licensing** for on-premises and cloud deployments that allows you to dynamically share licensed capacity between hardware and software, minimizing the need to repurchase new licenses when moving to the cloud.

NetScaler Unified Gateway

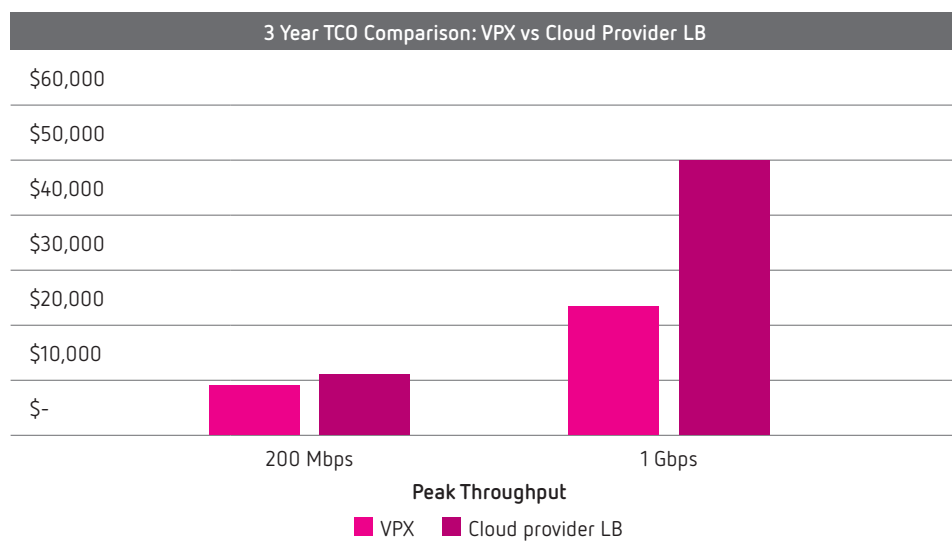
NetScaler Unified Gateway authenticates users and enables secure access to corporate application environments, regardless of whether they are deployed on premises or in the cloud.

- **Secure ADFS** can be hosted on NetScaler on premises to provide authentication for users connecting to SaaS-based applications. This eliminates the creation of multiple identity stores in the cloud by deferring all requests through NetScaler against users' AD credentials managed on premises.
- **Single sign-on** improves the user experience across all applications. NetScaler Unified Gateway can simplify accessing on-premises and SaaS-based applications with a single logon.

NetScaler SD-WAN

NetScaler SD-WAN provides increased reliability for connectivity to public cloud and SaaS-based environments.

- **Support secure digital workspaces in the cloud.** Certain on-premises applications may need to be published with cloud-hosted



instances of Citrix XenApp or XenDesktop. This creates the need for a secure, reliable connection between the on-premises data center and the cloud. NetScaler SD-WAN can be deployed to enable a secure tunnel between sites.

- **Reliable branch connectivity** becomes increasingly important as applications move to the cloud. Branches are often forced to source internet connectivity via the primary data center to connect to the cloud. NetScaler SD-WAN can aggregate multiple internet, cellular, and satellite links to provide a reliable network link to the cloud and SaaS, eliminating the need to backhaul data through the data center.

NetScaler Management and Analytics System

NetScaler Management and Analytics System (MAS) provides visibility across all applications that are delivered with NetScaler. It is available either as an on-premises VM-based deployment or as a service in the cloud.

- **Application health scoring** is available for applications hosted on premises and in the cloud. This insight provides an enumerated score that assesses the applications' security risks and any anomalous traffic flows that can be potentially disruptive.
- **Hyper-availability across multiclouds** prevents downtime due to outages that can occur at any cloud provider. NetScaler MAS can facilitate multisite failover and GSLB during an outage at any of the active deployment sites.

- **Service orchestration and automation** is becoming increasingly important as workloads move to the cloud. The need to automate conventional on-premises infrastructure leveraging software-defined platforms such as OpenStack or Cisco ACI places increased pressure on ADCs to meet these new requirements. NetScaler MAS enables automation of NetScaler ADC services with these platforms.

Why NetScaler versus cloud provider load balancers?

Many cloud providers offer integrated application delivery services that can be deployed as a part of their hosted infrastructure. For the enterprise that is deploying a hybrid architecture, this may not prove to be the most effective alternative. NetScaler's approach to hybrid cloud application delivery offers these advantages:

- **NetScaler provides complete hybrid and multicloud supportability.** NetScaler provides a single management and control plane that can span deployments on premises and in the public cloud, and enables shared ADC capacity across instances in hybrid and multicloud environments. Put simply, enterprise businesses can simplify application monitoring and management with NetScaler. While cloud providers offer an extensive array of monitoring tools for workloads provisioned in their infrastructure, they fall short when it comes to extending visibility and failover to applications that remain on premises or are deployed in a competitive cloud provider's domain.

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- **NetScaler solutions offer an end-to-end application delivery network infrastructure.** NetScaler is a software solution that provides server load balancing, security, and increased branch-to-cloud resilience on the WAN. Enterprise businesses can simplify operations by consolidating on-premises and cloud-hosted infrastructure, while gaining increased visibility and security across their hybrid infrastructure. Many cloud providers offer fairly rudimentary services that are only supported in the public cloud, and businesses need to maintain separate infrastructure for on-premises workloads. Additionally, cloud providers do not currently offer any solutions to improve WAN resilience.
 - **NetScaler allows for better cost efficiencies in production.** NetScaler's operational costs are up to 40 percent lower when supporting multiple applications in high-throughput environments. NetScaler can support thousands of VIPs from a single instance.

One of the leading cloud provider load balancing services is priced per instance, and multiple instances are required to support more than one FQDN. Additionally, data transfer rates can negatively impact overall cost savings in high-throughput instances.

NetScaler models and platforms

NetScaler VPX 10, 25, 200, 1000, and 3000
NetScaler CPX, CPX Express
NetScaler SD-WAN Standard Edition on Azure

Getting started

You can start using NetScaler in the cloud today either in [AWS](#) or [Azure](#).



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