

# Delivering Secure Remote Access for the Modern Enterprise

Learn how Citrix NetScaler with Unified Gateway provides secure, high-definition access and One URL for any application, from anywhere, using any device.

Providing secure remote access to essential enterprise applications and data has never been more challenging. In the past, IT teams only needed a way for a small subset of their organizations' users to securely access a handful of internal systems and applications, typically from corporate controlled devices. Today, an organization's secure remote access strategy must account for a much larger and far more diverse population of users and devices requiring highly reliable access to a much broader spectrum of resources – including enterprise web, mobile, cloud and client-server applications, hosted desktops and data.

This white paper examines the evolution of secure remote access requirements and the resulting challenges facing today's IT and Application departments. It then reveals how Citrix® NetScaler® with Unified Gateway resolves these challenges by providing a unified solution for enabling secure remote access for any user, with any device, to any application, desktop or data. With NetScaler®, users obtain reliable, high-definition access to the resources they need wherever, whenever and on whatever device they choose to work, while IT gains a single point of control for maintaining regulatory compliance and ensuring the highest levels of security across the enterprise and beyond its borders.

Benefits of a secure remote access deployment featuring NetScaler with Unified Gateway include:

- Improved user experience, as a result of providing One URL to access any application remotely.
- Improved productivity, as a result of users having the flexibility to get work done on their terms - from anywhere, using any device.
- Reduced security risk, based on IT and application teams having centralized, granular control of access to essential systems, applications and data.
- Reduced total cost of ownership, as a result of having a single unified solution that enables IT to consolidate disparate remote access products that have been deployed over time to meet the needs of different users, devices and applications.
- Enhanced SLAs both for fulfilling new request for remote access capabilities and for resolving network and application issues.

Organizations that use NetScaler with Unified Gateway in conjunction with Citrix XenDesktop®, Citrix XenApp®, Citrix XenMobile®, and Citrix ShareFile® deployments also benefit from tight integration that delivers unmatched capabilities relative to competing solutions, including centralized policy management, greater granularity of control, enhanced security and a superior high-definition user experience.

## The Modern Enterprise

For most organizations, remote access was originally little more than a novelty. The capability was often reserved for a relatively small subset of an organization's employees, such as members of the IT department, key sales personnel and the "road warrior" segment of the management team – so-called because of the amount of time they spent on the road, away from the corporate site that was their nominal base of operations. In addition, access was only provided to a small handful of applications or network file shares and was only supported for specific, IT owned and managed devices (usually a few select brands and configurations of laptops).

Fast forward to today and the situation is much different. Over the past handful of years especially, there have been significant changes to all major parts of the remote access equation.

- **Networks** – pervasive high-speed connectivity has made large-scale remote access deployments both technically and financially feasible (if not attractive).
- **Users** – Mobility, telecommuting and opportunistically putting in an additional hour whenever possible (e.g., after dinner or over the weekend) have become rule of thumb, rather than exceptions. In addition, it's not just an organization's employees that need access to various systems and resources, but also service, technology and business partners – not to mention the occasional customer or constituent.
- **Devices** – Spurred on by the consumerization of IT and adoption of bring-your-own (BYO) policies, the proliferation of mobile devices – all with high-speed data services – has been nothing short of astounding. Practically every user is now "remote access ready" by default. All that's needed is a solution that supports all of these devices and the ability to efficiently provision appropriate access and data protection policies.
- **Applications** – The scope of what users need access to has also diversified. In addition to a couple of client-server applications and network shares, a single point of access is now needed for everything, including hosted virtual desktops and enterprise web, SaaS and mobile apps.

Today, most users expect access to all the resources they need to remain productive, wherever they are and on whatever device they happen to be using at the time. Moreover, business management shares this expectation, for their employees as well as themselves.

As a result, today's organizations need a solution that not only delivers remote access for all users, devices, locations, applications and data, but also ensures a consistent, high-definition access experience and maintains the highest levels of security and data protection.

## NetScaler with Unified Gateway Has You Covered

Citrix NetScaler with Unified Gateway provides users with One URL for secure remote access from any device to business applications deployed in the datacenter or in a cloud. Addressing the need for One URL for users and a single point of control for administrators, NetScaler with Unified Gateway efficiently and effectively meets all of the modern enterprise's remote access requirements with a single unified solution. No longer is it necessary for IT to deploy and maintain a collection of specialized products and technologies to account for different remote access scenarios.

With NetScaler with Unified Gateway, organizations get complete coverage for all users, devices, applications and data, all the time.

#### Any user

Support for multiple connection modes ensures coverage for the broadest possible set of users and access scenarios. A completely clientless mode requiring nothing but a browser enables rapid implementation of secure remote access to all web applications and resources for practically any user anywhere, including non-employees. Seamlessly downloadable client software – the Citrix Receiver™ universal access client or the NetScaler with Unified Gateway Plug-in – also makes it easy to take advantage of the ICA® Proxy and Full Network connection modes and extend access to XenDesktop/XenApp and all other networked resources, respectively.

#### Any location and Any device

SmartAccess adaptive policy control enables administrators to constrain or expand the degree of access provided to align with the trust level of each access session. If a user's device is less trustworthy, such as an airport kiosk, then access can be limited to a handful of low sensitivity resources. If, however, the user is at home on a corporate laptop, then the policy can dynamically allow access to additional applications and services.

In addition, NetScaler with Unified Gateway provides broad client support, going well beyond solutions that confine users to Windows and MacOS platforms. With Receiver, remote access can be extended to just about any smartphone, tablet, desktop or laptop – from iOS and Android mobile devices to those Windows, MacOS, and Linux OS.

#### One URL for Any application, desktop and data

NetScaler with Unified Gateway's ability to provide One URL for remote access to all types of resources is a function of the multiple connection modes discussed earlier, along with custom integrations and features, such as:

- Integration with XenDesktop and XenApp to enable fine-grained control and a superior user experience when accessing hosted virtual desktops and applications.
- Integration with Citrix XenMobile to enable secure mobile access to web, email and native mobile app content hosted in the datacenter.
- Integration with Citrix ShareFile to enable employees to access, sync and securely share files from any device with people both inside and outside the organization.
- Proxy selection and Single Sign On (SSO) functionality that extend secure access and ease of use to SaaS and Web2.0 resources.

By incorporating the capabilities needed to support all types of remote access scenarios, including mobile users and devices – in a single unified platform, NetScaler with Unified Gateway not only eliminates the need to implement additional gateways, but also One URL for access and an opportunity to consolidate a wide range of existing solutions. The result is a far better situation for both IT and users.

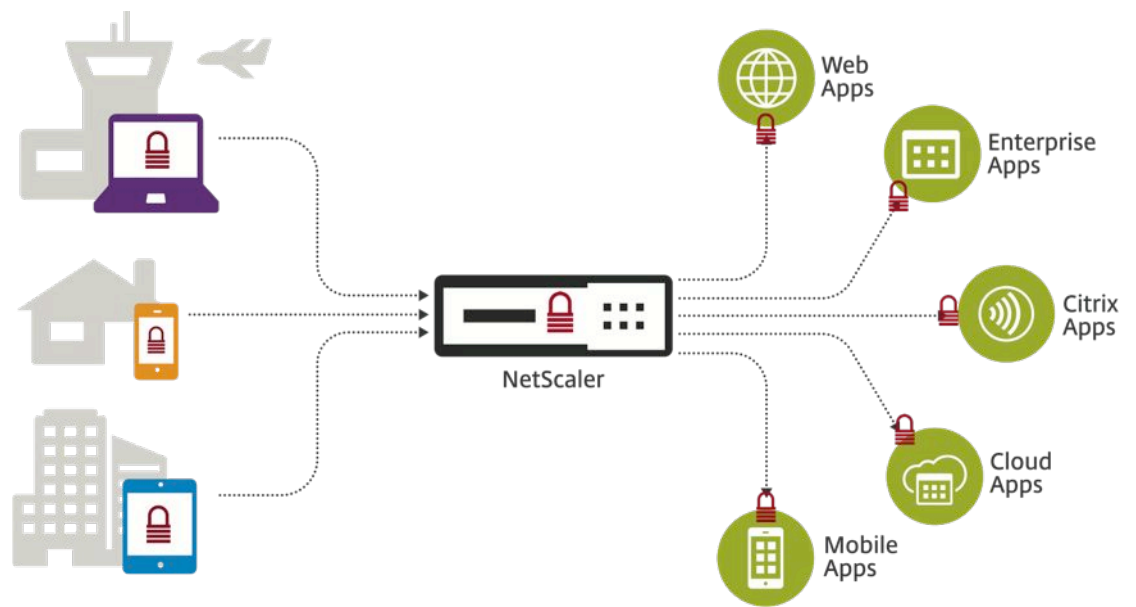


Figure 1: NetScaler with Unified Gateway provides secure remote access to any application (Web/SaaS, XenApp/XenDesktop, XenMobile, RDP, Database, Custom applications, etc.)

### Delivering End-to-End Protection and Control

Enabling remote access for any user and device to any resource is worthless if it cannot be done in a fully secure and tightly controlled manner. With an unparalleled set of network and data protection, access control and security management capabilities, NetScaler with Unified Gateway delivers end-to-end security and maintains compliance with applicable data protection and privacy regulations.

#### Secure session capabilities

A combination of powerful and innovative security features protects the corporate environment from compromised or insecure devices while also maintaining the confidentiality and integrity of transmitted data.

- **Identity-based control.** NetScaler with Unified Gateway can be used as an SAML 2.0 Identity Provider or Service provider to control access to resources within a datacenter or in a cloud. NetScaler grants user access, only upon validation of a user's identity, to a set of resources a user has authorization for. In addition to this, NetScaler support various authentication mechanisms like local authentication, RADIUS, LDAP, TACACS, digital certificates, NTLM and Kerberos constrained delegation.
- **Endpoint analysis.** Integrated endpoint scanning can be used to verify identity of corporate owned devices and to determine if they adhere to corporate policies for security, such as having operational and up-to-date antivirus and personal firewall software. For devices that fail these checks, access can be restricted to pre-defined remediation zones where users can obtain the tools needed to bring them into compliance.



- **Classic SSL and MicroVPN.** All sessions are protected from eavesdropping by standards-based SSL/TLS encryption. With the classic SSL VPN capability, the resulting tunnel can be used to provide access to a broad set of resources, including entire networks. Alternately, administrators also the solution's innovative MicroVPN feature to define the tunnel for a single, designated application – an approach that inherently restricts the reach of mobile clients, thereby limiting the impact of any devices that are compromised.
- **Basic and enhanced split tunneling control.** The basic capability keeps clients from accessing another network while connected to a protected environment (thereby eliminating a potential pathway for data leakage). With the enhanced capability, users are still blocked from directly accessing the Internet, but can now access services on the client's local subnet (e.g., print and file shares).
- **Browser cache cleanup.** All objects and data stored on the local browser are flushed upon completion of an access session.

#### Adaptive access control using SmartAccess

NetScaler with Unified Gateway offers the most advanced adaptive access control policies for application environments. With SmartAccess, the degree of access a user obtains can be dynamically adjusted based on a variety of attributes, such as the user's role, strength of authentication, endpoint scanning results and sensitivity of the target resources. For example, administrators can configure one rule that allows a strongly authenticated mobile salesperson, operating with a corporate device access to the full suite of hosted sales tools, while a second rule limits sales team members using password-only authentication from unknown devices to a XenApp-hosted (and contained) app for generating and managing proposals. Because NetScaler with Unified Gateway includes in-depth knowledge of the ICA protocol, administrators can even control actions of XenDesktop and XenApp users that might be considered risky in certain situations, such as local print, copy, paste and save-to-disk operations.

#### Centralized policy management using SmartControl

As a consolidated front-end for numerous internal applications and systems, NetScaler with Unified Gateway provides SmartControl, a convenient and centralized approach that simplifies the management of otherwise disparate access control policies. Users benefit from a consistent set of rules and a uniform approach to remote access, while less potential for things to "slip through the cracks" reduces overall risk. In addition, event logging, full RADIUS accounting, a complete audit trail of administrative actions and robust reporting capabilities provide the ability not only to investigate known security incidents, but also to proactively uncover misuse and other telltale signs of compromised clients or attacks against an organization's internal resources.

#### Delivering a High-Definition Experience

The success of a remote access deployment depends as much on the usability of the solution as it does on the level of security that is provided. NetScaler with Unified Gateway delivers an unparalleled, high-definition user experience by providing One URL for secure remote access to any application and by empowering users with their choice of device and the ability to work wherever and whenever they want. It also provides numerous features that not only guarantee the accessibility of resources but also ensure a smooth, high-performance access session closely rivaling that of being in the office (i.e., directly attached to the corporate network).

### Always-on

Reliable, non-stop access to resources is supported by a series of integral health checks that proactively monitor the status of key components. Along with basic tests to confirm network connectivity and that underlying hardware is up and running, NetScaler with Unified Gateway includes an array of extended content verification checks to establish the availability and proper functioning of numerous software routines and services for downstream resources, including XenDesktop, XenApp, ShareFile, XenMobile Device Manager and XenMobile AppController. Native high-availability and clustering capabilities further ensure resource accessibility by enabling fault-tolerant configurations of NetScaler with Unified Gateway itself.

### Smooth and seamless

As a single point of access for users, NetScaler with Unified Gateway ensures a consistent access experience, for example, through the standardization of authentication mechanisms and access policies. Additional features that streamline and enhance the remote access process for users include:

- Single sign-on (SSO) for all web, SaaS and Citrix resources.
- Descriptive feedback on the probable cause for any authentication failures that occur.
- A highly customizable and localized user interface, with choice of English, Spanish, French, German and Japanese.
- A landing page identifying accessible resources for each individual user.
- The ability to dynamically download client software at the time of initial connection.
- Seamless reconnection upon loss of network connectivity and when users change locations or devices.

### High-performance

Native capabilities for accelerating remote access sessions include TCP compression, content caching and extensive protocol-level optimizations for TCP and ICA. For even greater performance gains, organizations can tap into the advanced acceleration techniques and algorithms available through an integrated deployment with the Citrix CloudBridge™ solution for WAN and mobile optimization.

### Monitoring and Troubleshooting using Web/HDX Insight

With NetScaler Insight Center™, administrators also obtain complete end-to-end visibility into all web and ICA traffic passing through their NetScaler with Unified Gateway devices. Powerful reports illuminate everything from top users, desktops and apps – for example, based on bandwidth consumed, active sessions or latency – to the user, server and round-trip response times for individual XenDesktop and XenApp remote access sessions.

Armed with the wealth of historical and real-time data provided by both HDX Insight™ and Web Insight, administrators can quickly answer questions such as:

- Which hosted desktops (or web apps) are being used the most and does the corresponding volume of activity or level of performance signal the need to add more server capacity?
- For a user complaining of poor performance, what is the most likely source of the problem: client, network, or server/datacenter infrastructure?

- Are the solution's integral caching capabilities optimally configured to maximize web app performance?
- How are different web apps and hosted resources being used (and performing) across different geographical locations?

The net result is the ability to deliver a compelling high-performance user experience not only by triaging user issues in real-time, but also by leveraging available network and application intelligence for proactive capacity planning and problem avoidance.

### **Delivering the Best Remote Access Solution for Citrix Environments**

Using NetScaler with Unified Gateway as the secure front-end for XenDesktop, XenApp, XenMobile, and any web, enterprise and cloud/SaaS apps provides One URL that consolidates secure remote infrastructure and reduces cost of ownership, improve ease of management, reduce multiple skill sets required and flexibility to the end user to use any device to access any application.

Equally important are the extensive integrations that come from having first-hand knowledge of the ICA protocol and many of the other components that make up an end-to-end solution. The health checks NetScaler with Unified Gateway uses to avoid sending users to failed, un-responsive or poorly performing systems are one example. Others include:

- The availability of several wizards that streamline the task of configuring NetScaler with Unified Gateway to enable access to XenDesktop, XenApp, XenMobile and ShareFile.
- The capability to provide per app VPN tunnel on Android and iOS platforms or MicroVPN tunnel for XenMobile applications, thereby avoiding the need to provision full, network-level access to potentially compromised devices.
- The ability to consolidate datacenter infrastructure by deploying the Web Interface for XenDesktop/XenApp as an integral component of NetScaler with Unified Gateway (instead of as one or more standalone servers).
- The ability to adaptively control local print, copy, paste and save-to-disk functionality for remote XenDesktop and XenApp users, thereby cutting off a potential avenue for exposure of sensitive data.
- The NetScaler with Unified Gateway capability to serve as a proxy for ActiveSync traffic and dynamically coordinate with the XenMobile Device Manager on the decision to allow access by mobile clients to native email services based on a range of criteria – such as whether the mobile device is jailbroken, in an undesirable geographic location, or out of compliance in some other way.
- The HDX Insight capability, which provides comprehensive visibility into ICA traffic and gives administrators a powerful tool for both triaging and proactively preventing related performance problems.

The bottom line is that an unparalleled set of integrations and other supporting capabilities makes NetScaler with Unified Gateway the fastest-performing, most secure solution for enabling remote access to XenDesktop, XenApp and XenMobile infrastructure.



## Conclusion

By balancing the need for One URL for users with the need for a single point of control for IT administrators, Citrix NetScaler with Unified Gateway cost effectively addresses all of the modern enterprise's remote access requirements in a single unified solution. NetScaler with Unified Gateway provides One URL and enable users to obtain consistent high-definition access to all of the applications, desktops, data and other resources they need wherever, whenever and on whatever device they choose to work. At the same time, IT and application admins get the granular control and protection capabilities they require to maintain regulatory compliance and ensure the highest levels of security across the extended enterprise – from the datacenter to user's mobile devices and all points in-between.

Numerous, in-depth integrations with Citrix XenDesktop, Citrix XenApp and Citrix XenMobile also makes NetScaler with Unified Gateway the best choice for enabling secure remote access to an organization's Citrix infrastructure. In fact, the ability of NetScaler with Unified Gateway to support all types of remote access scenarios, including mobile users and devices from One URL, in a single unified platform means that IT can now consolidate the disparate collection of solutions previously required to meet all of the organization's secure remote access needs. The net result is a less complex and costly remote access environment that is also more secure.

For more information on Citrix NetScaler with Unified Gateway, please visit:  
[www.citrix.com/gateway](http://www.citrix.com/gateway)

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