



Deploying Citrix NetScaler with Microsoft Exchange 2013 for GSLB

Table of Contents

Introduction	3
Overview of Microsoft Exchange 2013	3
Why NetScaler GSLB for Exchange 2013?	3
Topology	3
Single Namespace	4
Regional Namespace	5
Disaster Situation	6
Configuring NetScaler GSLB	6
Products and version tested	6
Prerequisites and configuration notes	6
Configuring NetScaler GSLB	6
Add GSLB Sites	7
Add GSLB Services	8
Add GSLB Virtual Server	9
Conclusion	10

Microsoft Exchange, one of the most critical enterprise applications, provides access to email—the lifeline of any business. Citrix NetScaler is the industry’s leading application delivery controller (ADC) and the best solution for providing global server load balancing (GSLB) for enterprise applications like Exchange. This guide will walk you through step-by-step process of deploying NetScaler with Exchange 2013 for GSLB.

This solution guide is an extension of the Deployment Guide for Microsoft Exchange 2013 and Citrix® NetScaler®. The deployment guide explains the deployment of Exchange 2013 with NetScaler for load balancing and monitoring purposes along with the details of various servers involved and the combined architecture. We have expanded the same setup with one more site to provide GSLB solution which is explained in this guide.

Overview of Microsoft Exchange 2013

Microsoft Exchange is one of the most critical enterprise application which helps in increasing productivity by providing constant access to email, calendars and contacts, as well as important files and information. Exchange 2013 version provides many new and advanced features such as integration with SharePoint and Lync with faster failover times and support for multiple databases per volume. Exchange 2013 also supports multiple databases per disk via Data Availability Group (DAG) management.

Why NetScaler GSLB for Exchange 2013?

When an organization grows, the number of users grows and spreads to multiple locations. Business critical applications like Exchange which is used by every employee of an organization, needs to be deployed at multiple sites. NetScaler GSLB solution enables applications to be highly available with geographic proximity along with disaster recovery for enterprise applications like Exchange. Exchange 2013, which has multiple advanced features, can be best utilized when used with NetScaler for GSLB, wherein mails, calendars and contacts are always available for end users by maximizing the capabilities of Data Availability Group component.

Topology

The GSLB deployment for Exchange 2013 logically looks like as shown in Figure 1. The deployment is same for both internal and external clients. DNS view helps in managing internal and external IP address mapping with DNS name.

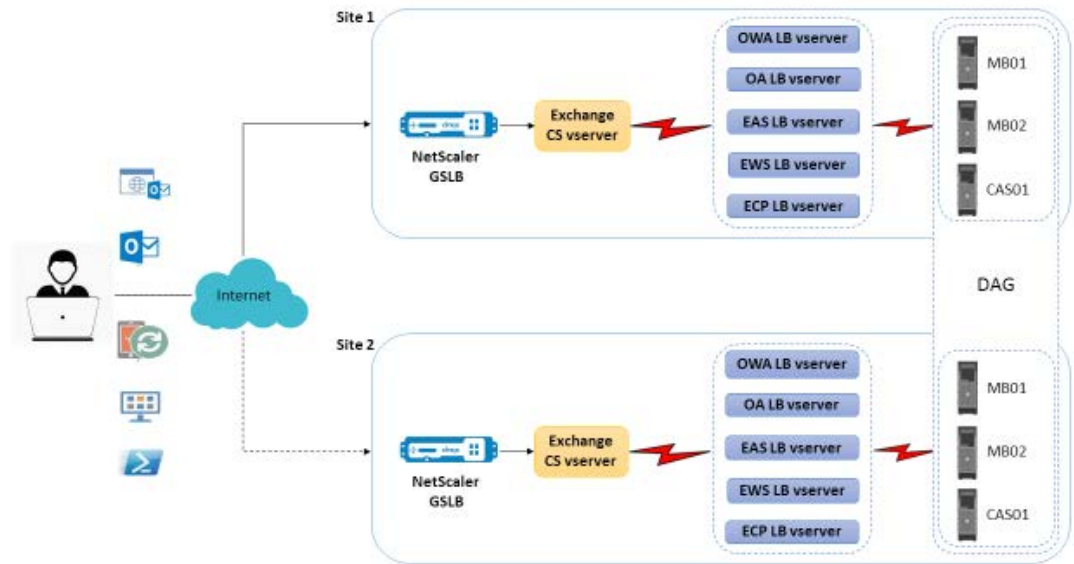


Figure 1: Exchange deployment with NetScaler GSLB

1. A user using any of the mail clients, accesses the login page at mail.ctxns.net. A DNS request for it is issued.
2. This domain name is bound to GSLB virtual server. So, resolution request comes to GSLB virtual server which resolves the domain name to an IP address based on the GSLB method configured.
3. The IP address of content switch virtual server is sent to the client depending on whether the user is in intranet or connecting via Internet.
4. Client connects to content switch virtual server and depending on the client, i.e. OWA, Active Sync or Outlook client, request is sent to load balancing (lb) virtual server. This decision is made on the basis of policies bound to content switch virtual server. Different clients add different suffixes to the domain name when they connect to virtual server. For example, /owa for web browser clients, /oa for Outlook anywhere.
5. The selected lb virtual server connects to one of the backend mail servers depending on the local load balancing method configured on it.
6. The backend mail server responds to the request and the response is sent to client.

There are three scenarios possible in Exchange 2013 deployment.

Single Namespace

There can be a single namespace model wherein a single DAG is deployed across the datacentre pair. This is a more common deployment and looks like the one in Figure 1. Mailboxes for both datacenters are dispersed across the mailbox databases within this DAG. In case of WAN failure in one of the datacenters (shown in Figure 2), clients can connect to other datacenters as neither datacenter's connectivity is a boundary. As seen in diagram, a user belonging to site 1 can access his mails and contacts by connecting to site 2 in case of a WAN failure.

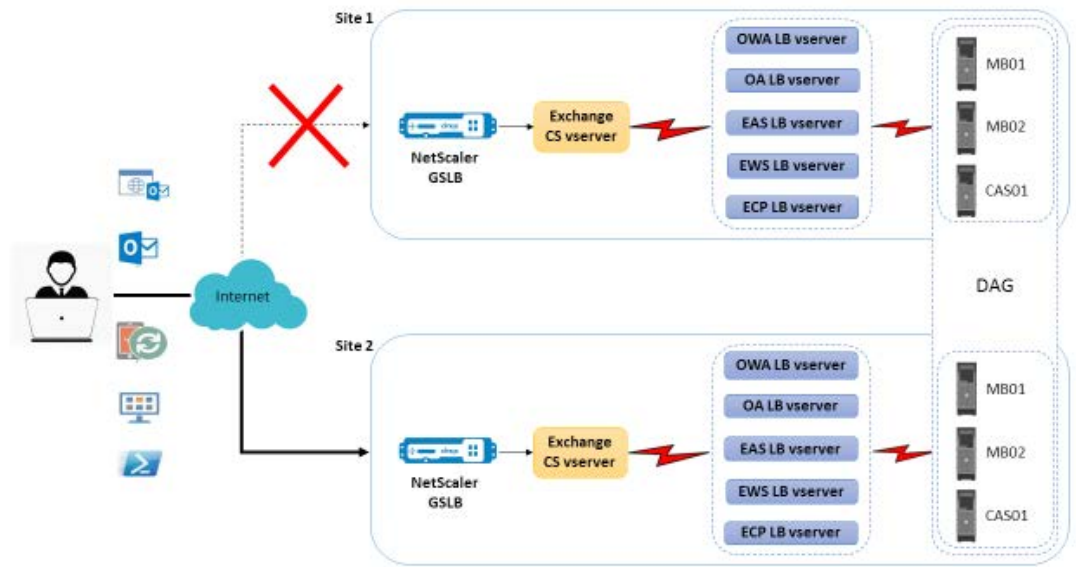


Figure 2: GSLB in case of WAN failure

Regional Namespace

There can be a regional namespace model wherein DAG is limited to one datacentre only. In this architecture, client connects to the closest mailbox server. This is done to reduce the cross-region network traffic. This is shown in Figure 3. NetScaler GSLB's static proximity feature enables this to happen. IP address of client is checked in the location file and routing decision is taken on the basis of it.

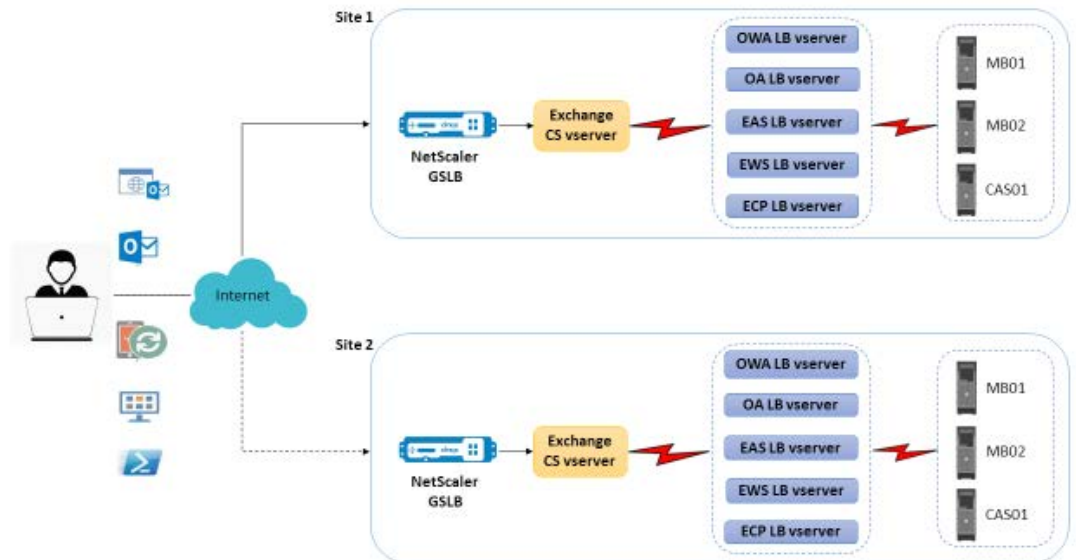


Figure 3: GSLB in case of regional namespace

Disaster Situation

NetScaler GSLB also enables to maintain availability in case of site level disaster in which one of the sites is completely unavailable. This is shown in Figure 4. When there is hot sync between the mailbox servers and the user information is available on all the mailbox servers, then all the requests of site 1 can be completely served from site 2.

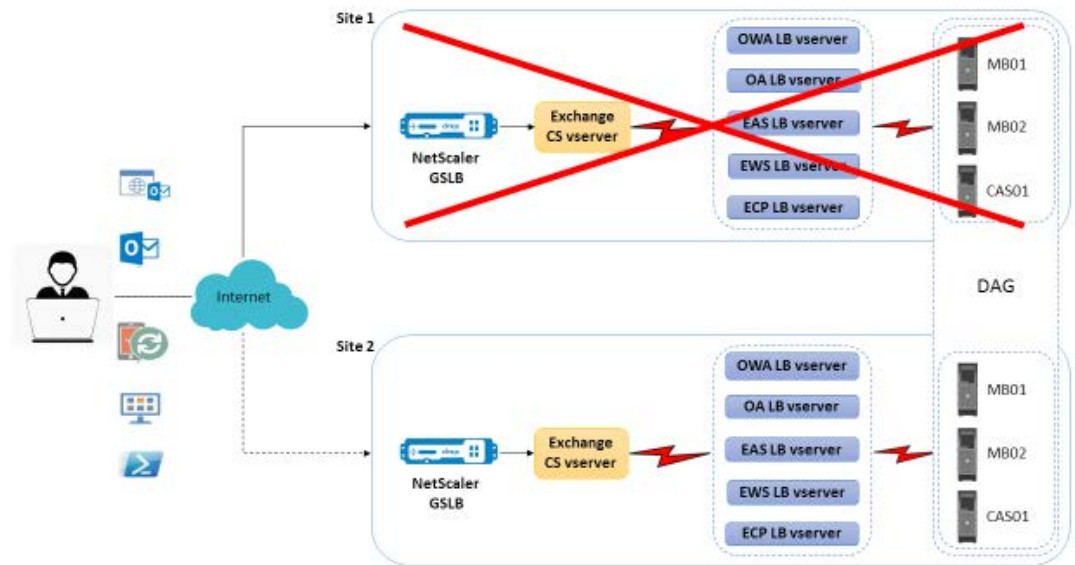


Figure 4: NetScaler GSLB handling a disaster situation

Configuring NetScaler GSLB

Products and version tested

Product	Versions
NetScaler system	NetScaler 10.5.52.5
Microsoft Exchange	Exchange 2013

Note: The deployment is tested and remains same with NetScaler version 9.3 and ahead.

Prerequisites and configuration notes

The following are general prerequisites and configuration notes for this guide:

- Exchange servers are installed on all the sites and the topology is properly configured.
- The NetScaler load balancer, SSL and other configurations are made on all the sites.
- All the services are up and running.

Configuring NetScaler GSLB

Step 1: Create sites – local and remote

Step 2: Create services for the local virtual servers

Step 3: Create virtual servers for the GSLB services

Step 4: Bind GSLB services to the GSLB virtual server

Step 5: Bind domain name(s) to the GSLB virtual server

Add GSLB Sites

Add local and remote sites between which GSLB will be configured. Add a site as shown below.

GSLB Sites (Traffic Management -> GSLB -> Sites)

Name	Give a unique name to the site
Type	Select whether the site will be local or remote
Site IP Address	Add the site IP address
Public IP Address	Add the public IP address of this site
Parent Site Name	Add parent site in case of parent-child topology
Trigger Monitors	Specify the conditions under which the GSLB service must be monitored. Default: Always
Metric Exchange	Select if you want this site to exchange metrics with other site. Default: selected
Network Metric Exchange	Select if you want this site to exchange network metrics with other sites. Default: selected
Persistence Session Entry Exchange	Select if you want this site to exchange persistent session entries with other GSLB sites every five seconds

Create GSLB Site

Name*

Type

Site IP Address
 IPv6

Public IP Address
 IPv6

Parent Site Name

Trigger Monitors*

Metric Exchange
 Network Metric Exchange
 Persistence Session Entry Exchange

Name	Metric Exchange (ME)	Site Metric MEP Status	Site IP Address	Type	Public IP Address	Parent Site Name	Trigger Monitors
child	Enabled		10.105.157.51	LOCAL	10.105.157.51		ALWAYS
Remote_250	Enabled	Active	10.105.157.248	REMOTE	10.105.157.248		ALWAYS

Add GSLB Services

Add GSLB services for the local and remote virtual servers which load balances mailbox servers.

GSLB Services (Traffic Management -> GSLB -> Services)

Service Name	Give a unique name to the service
Site Name	Select the site to which this service belong
Type	Select if the service is IP based or name based
Service Type	Select the applicable protocol
Port	Select the applicable port
Server Name	Select the corresponding NetScaler LB virtual server name
Server IP	Add the LB virtual server's IP address
Public IP	Add the public IP of the LB virtual server
Public Port	Add the public port number of the LB virtual server
Enable after Creating	Select to enable the service after creating
Enable Health Monitoring	Select to enable health monitoring of the service
AppFlow Logging	Select to enable logging of AppFlow information

Basic Settings

Service Name*

Site Name*

Site Type

Type*

Service Type*

Port*

Existing Servers New Server

Server Name*

Server IP

Public IP
 IPv6

Public Port

Enable after Creating
 Enable Health Monitoring
 AppFlow Logging

Comments

Name	State	Effective State	IP Address	Port	Canonical Name	Protocol	Type
▶ v_cas_server_child	Up	Up	192.168.1.66	443		SSL	LOCAL
▶ cs_cas_443_Remote_250	Up	Up	192.168.2.90	443		SSL	REMOTE

Add GSLB Virtual Server

Add GSLB virtual server through which Exchange servers will be accessible. Bind domain name and GSLB services to it.

GSLB Virtual Servers (Traffic Management -> GSLB -> Virtual Servers)

Name	Give a unique name to the virtual server
DNS Record Type	Select the applicable record type
Service Type	Select the applicable protocol
Enable after Creating	Select to enable the virtual server after creating
AppFlow Logging	Select to enable logging of AppFlow information
Method	Select the site-level load balancing method
Backup Method	Add the applicable backup site-level load balancing method

Basic Settings

Name*
 ?

DNS Record Type*

Service Type*

Enable after Creating
 AppFlow Logging

When this Virtual Server is DOWN
 Do not send any service's IP address in response (EDR)

When this Virtual Server is UP
 Send all "active" service IPs' in response (MIR)

Comments

After creating the GSLB virtual server and selecting the appropriate load balancing method, bind services and domain(s) to complete the step.

Go to the advanced tab inside the virtual server and add Domains tab to bind a domain.

GSLB Virtual Server Domain Binding					
Domain Name	TTL (secs)	Backup IP	Cookie Domain	Cookie Timeout	Site Domain TTL
mail.ctxns.net	5			0	3600

Go to Advanced -> Services and click on the arrow to bind a GSLB service.

GSLB Virtual Server GSLB Service Binding									
Service Name	IP Address	Port	Canonical Name	State	Effective State	Weight	Dynamic Weight	Cumulative Weight	
▶ v_cas_server_child	192.168.1.66	443		Up	Up	1	0	1	
▶ cs_cas_443_Remote_250	192.168.2.90	443		Up	Up	1	0	1	

Check if GSLB virtual server if up and 100% healthy. This will mean that sites are in sync and backend services are available.

Name	State	Protocol	% Health
▶ gslb_vs	Up	SSL	100.00% 2 UP/0 DOWN

Conclusion

Citrix NetScaler, the leading application delivery solution, is best suited to provide load balancing and GSLB capabilities for Microsoft Exchange 2013. NetScaler and Exchange 2013, both are de facto industry standards in their domains, and their collaboration guarantees high benefits for businesses. GSLB enhances the capabilities of Exchange 2013 by ensuring high availability of mailbox servers in different models like single DAG and multiple DAG. To learn more about how NetScaler can bring these benefits to Exchange 2013 installations or address other application delivery requirements, please visit <http://www.citrix.com>.

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