There is nothing to GSL**B** afraid of

Citrix ADC – Global Server Load Balancing

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Please note: the views and opinions in this presentation are entirely my own!

Citrix ADC: Global Server Load Balancing:

- Overview – Why? How? When? etc.
- Use cases
- Client Process - what happens when client's make use of a GSLB Service?
- Setup – what's needed?
- Demonstration – StoreFront as a use case

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Overview – what is GSLB?

G S L B

Global Server Load Balancing

Overview – what is GSLB?

- GSLB is a technology that allows Load Balancing and Failover between different service endpoints – for example, failing traffic over to a secondary DC in the event of the failure of a primary DC, without administrator intervention
- GSLB (on Citrix ADC) supports a number of different Load Balancing methods
- Utilizes DNS – DNS responses are used to direct clients to the required site – More on this shortly

Overview – what's needed to use GSLB?

- Requires at least two Citrix ADC appliances, with Enterprise or Platinum Licensing
- Control of at least 1 DNS Zone
- A knowledge of Citrix ADC Load Balancing – specifically for the services you intend to use with GSLB.
- An understanding of the DNS Client Process
- Networking knowledge & the ability to make changes/implement changes

Looking Closer

1. GSLB works by taking authoritative control of a DNS address – via delegation of the DNS Zone to the Citrix ADC

2. When a client requests a DNS Record this request is forwarded to the ADC thanks to DNS delegation

3. The ADC responds with the IP Address of the requested DNS Record (the service being Load Balanced) – albeit with a very low TTL value

4. The client accesses the URL/Record and thus accesses the service being Load Balanced/Provided by the ADC.

5. During a failover event, the very low TTL value means that subsequent attempts to access the service require a new DNS Lookup – back to step 2!

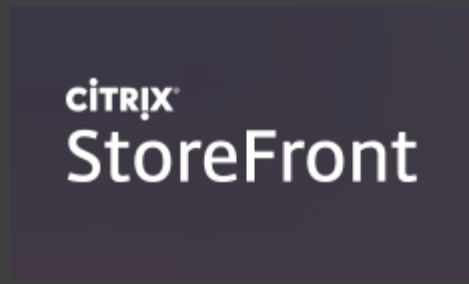
Just in case I didn't say DNS enough…

DNS is key!

DNS is key = quick DNS record updates (via the Citrix ADC + Low TTL setting) of client DNS to direct clients to the correct Service Endpoint (vServer)

Use Cases - When could we use GSLB?

- NetScaler Gateway
- Citrix StoreFront
- Outlook Web Access
- SharePoint
- **Any service that can be Load Balanced by Citrix ADC**



Use Cases - When could we use GSLB?

GSLB Method – how the client requests are directed:

- Round Robin
- Least Connections
- Least Response Time
- Least Bandwidth
- Least Packets
- Source IP Hash
- Custom Load
- Round Trip Time (RTT)
- Static Proximity

Use Cases - When could we use GSLB?

For simplicity – we will look at the two main Site Deployment Types:

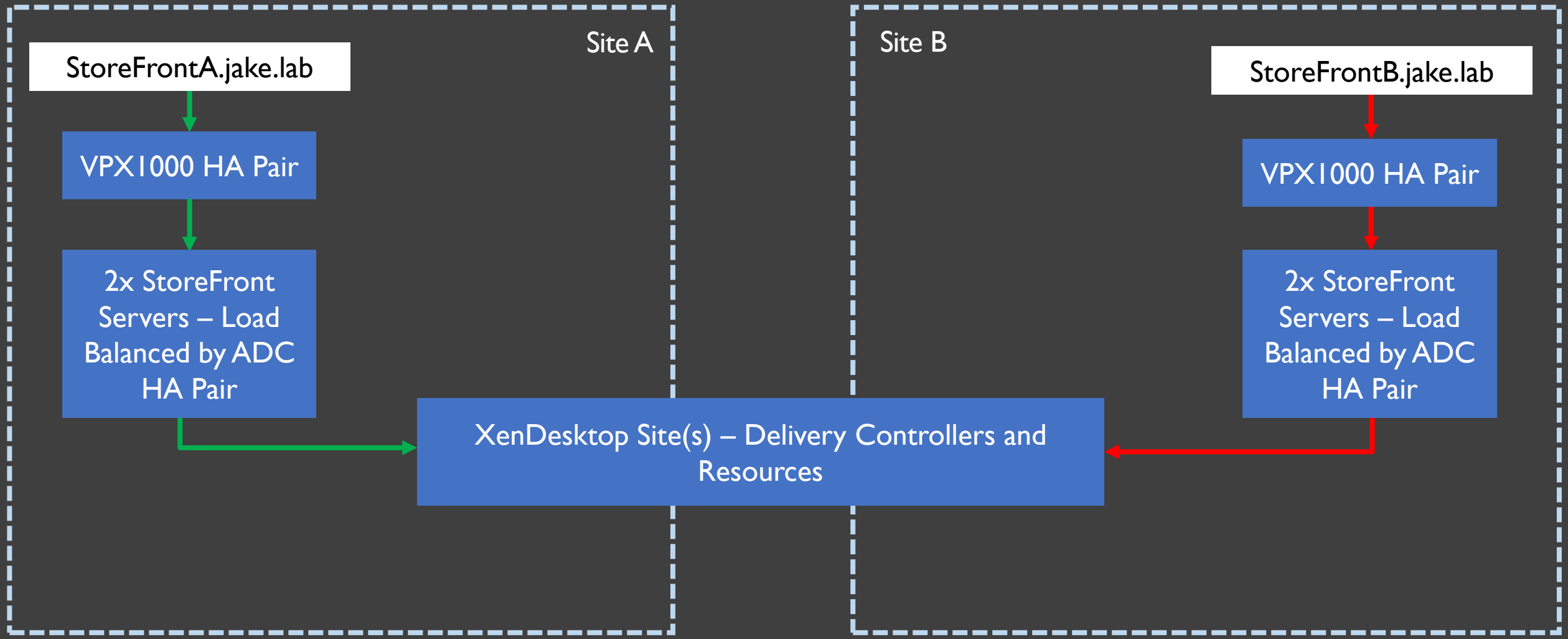
Active / Active – both sites always functional

Active / Passive – only one site functional, passive site operational if active site down

Demo – StoreFront with GSLB

Citrix ADC GSLB with StoreFront

Lab Environment – Pre GSLB



Overview – Components we need to setup

Setting up GSLB

What do we need to setup to implement GSLB? – 3 Steps!

- An ADNS listener on the ADC units (Authoritative DNS Listener) – so that the ADC can respond to DNS requests. This can be a Subnet IP (SNIP)
- A delegated DNS zone – so that requests for records in the GSLB DNS Zone are sent to the ADC units
- GSLB elements - Create the GSLB Domain, Sites, Services, and vServers – this forms the backbone of the GSLB Service and defines the load balancing arrangement in use. Wizard!

Overview – those 4 GSLB Items in detail

What does a typical GSLB setup contain?

A typical Global Server Load Balancing (GSLB) setup consists of the following components:

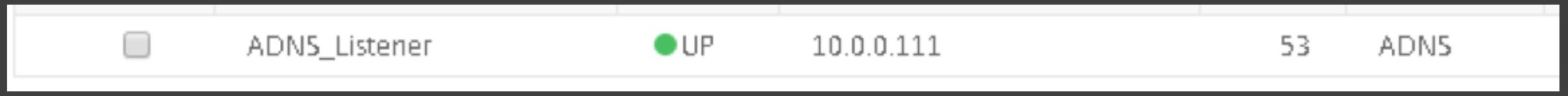
- **Global Server Load Balancing Domain**: The Global Server Load Balancing Domain is a publicly resolvable domain or zone for which the Global Server Load Balancing setup is responsible. You can set up a NetScaler appliance to be the Authoritative Server for this domain or to proxy the information to an internal DNS server.
- **Global Server Load Balancing Site**: The Global Server Load Balancing Site is the top-level entity for the Global Server Load Balancing communications. The information used when configuring the site is used for linking LOCAL sites to REMOTE sites and sharing monitoring data by using the Metric Exchange Protocol (MEP). The IP address used must be owned by the NetScaler appliance, such as subnet IP (SNIP), and must use TCP port 3011.
- **Global Server Load Balancing VServer**: The Global Server Load Balancing VServer is used as the decision intermediary for directing client requests to the Load Balancing VServers of one of the GSLB site. The Global Server Load Balancing VServer is bound to a Global Server Load Balancing service.
- **Global Server Load Balancing Service**: The Global Server Load Balancing Service is basically a monitoring link to the Load Balancing VServer. The Global Server Load Balancing Service monitors the link to the Load Balancing VServer that is created on the NetScaler appliance. The state of the local Global Server Load Balancing Service depends on the corresponding local virtual server state.

https://support.citrix.com/article/CTX110348

Step 1 – setting up the ADNS listener

To setup the ADNS listener:

1. Go to; Traffic Management, Load Balancing, Services
2. Create a new service, with the type ADNS, and use the Subnet IP Address of the ADC HA pair
3. Once created, this will appear as below:



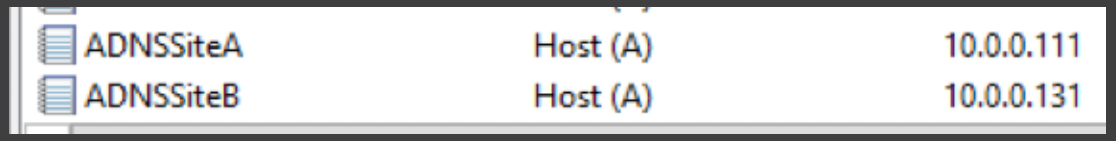
On the addresses screen, you will see the following:

Don't forget – you need to do this on both HA pairs!

Step 2 – delegate the DNS zone

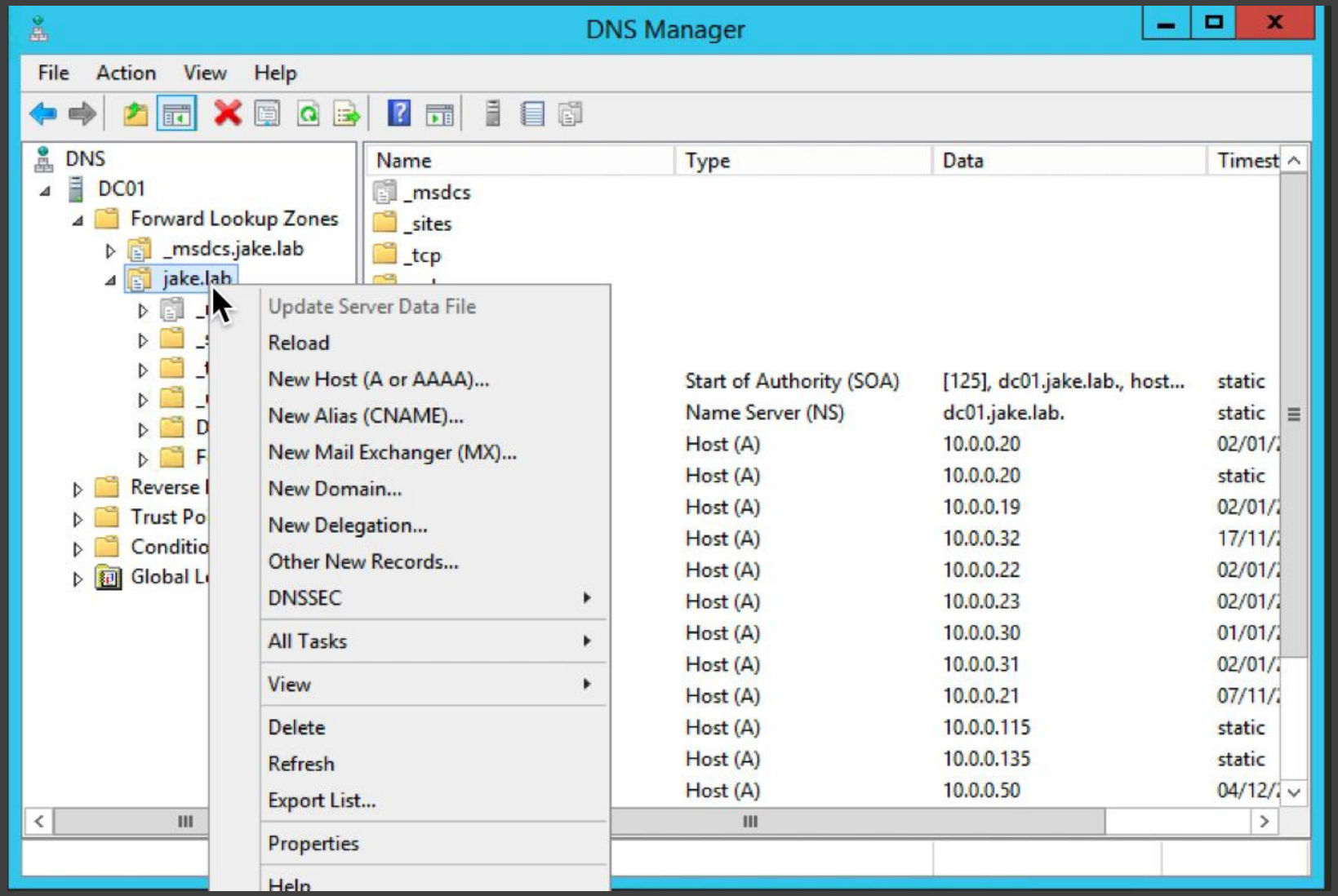
Next – we need to delegate the DNS zone to the ADC… so that it can respond to DNS requests. This is all done from within the Windows DNS snap in.

1. Create two A Records for the ADNS listeners:



These are created as standard A Records – just like a client machine would have in DNS

Step 2 – delegate the DNS zone



Step 3 – Setting up the GSLB Local and Remote Sites

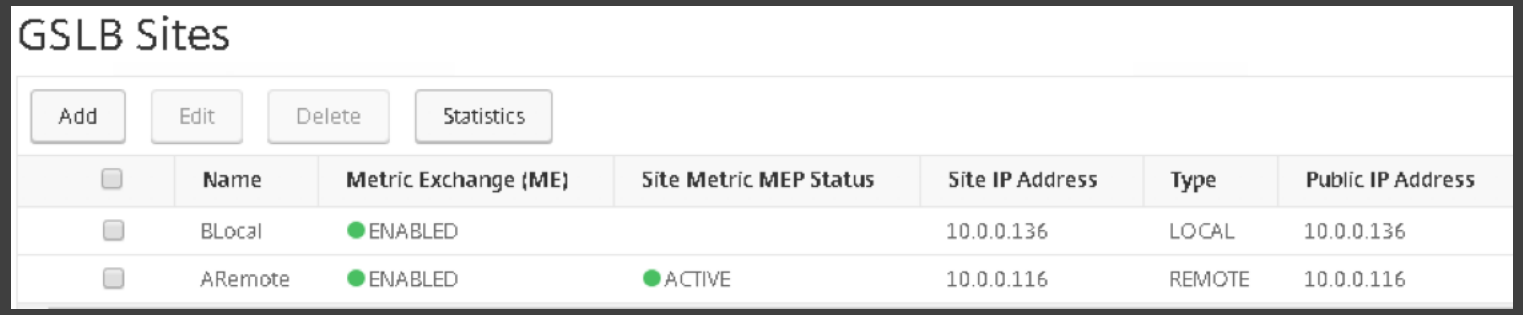
Defining the Sites creates the GSLB Topology – in this case, it's two GSLB Sites. 1 Local and 1 Remote – we need to define these on BOTH ADCs/HA Pairs. This allows Metric Exchange Protocol (MEP) to share GSLB Information between Sites.

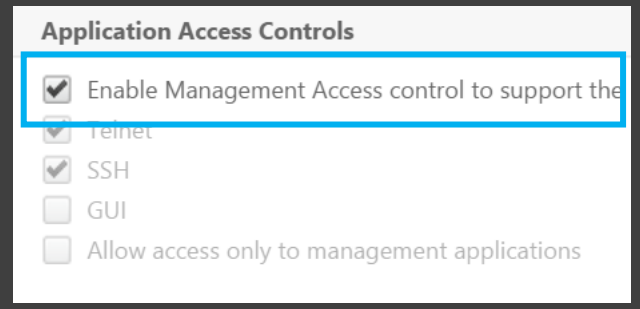
Site A ADC:

When setup – enable management access on the GSLB Site IPs

This is required to allow configuration Sync to work

Site B ADC:





Step 3 – Setting up the GSLB vServers, Services, and Domains

Configuring GSLB by Using a Wizard

May 23, 2017

You can now use a wizard to configure the GSLB deployment types: active-active, active-passive, and parent-child.

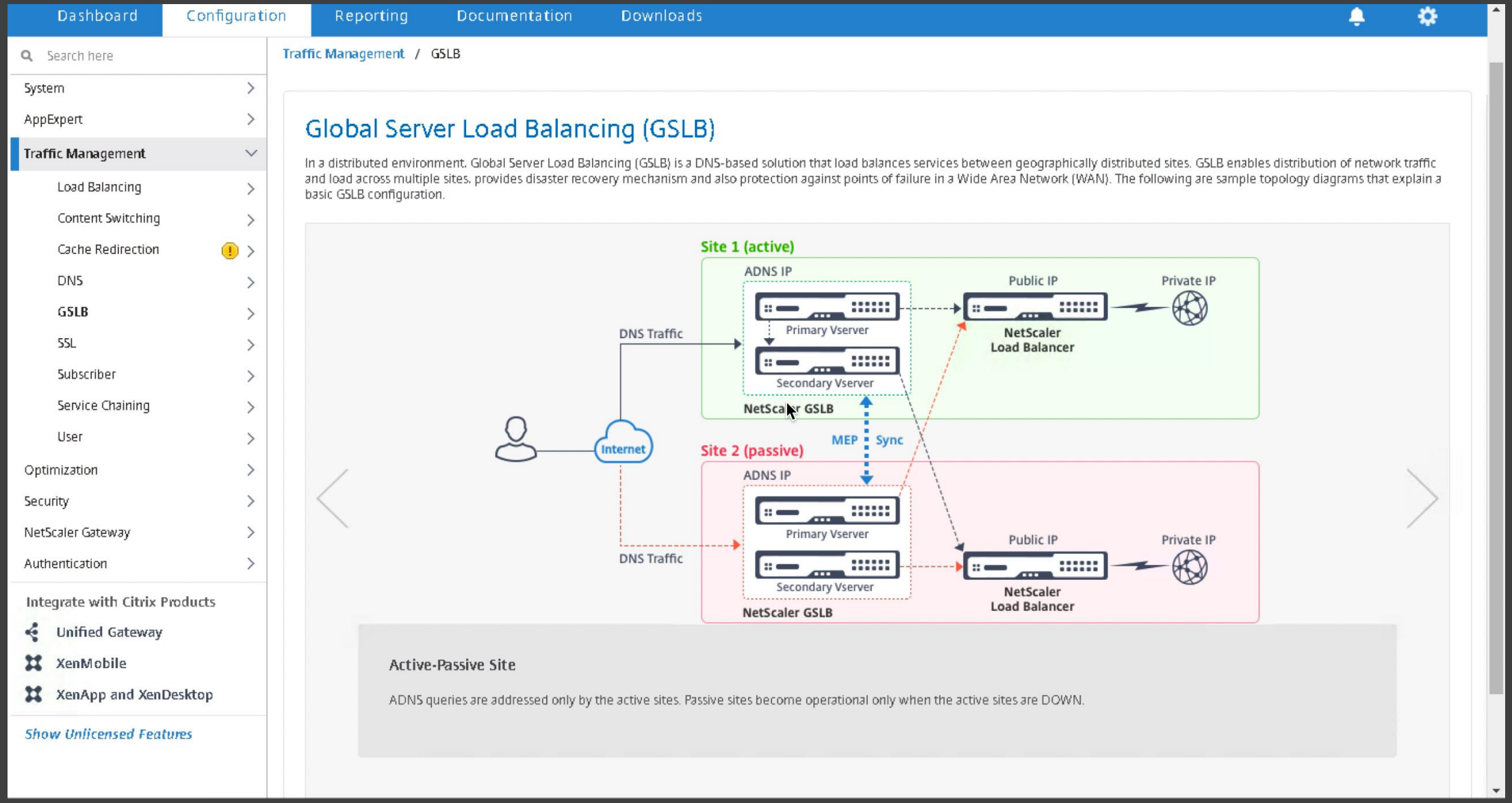
This wizard is available in the NetScaler GUI. To access the wizard, navigate to **Configuration** > **Traffic Management** > **GSLB** and click **Get Started**.

You can also access this wizard from the GSLB dashboard. Navigate to **Configuration** > **Traffic Management** > **GSLB** > **Dashboard** and click **Configure GSLB**.

Note: You can also configure the GSLB entities individually.

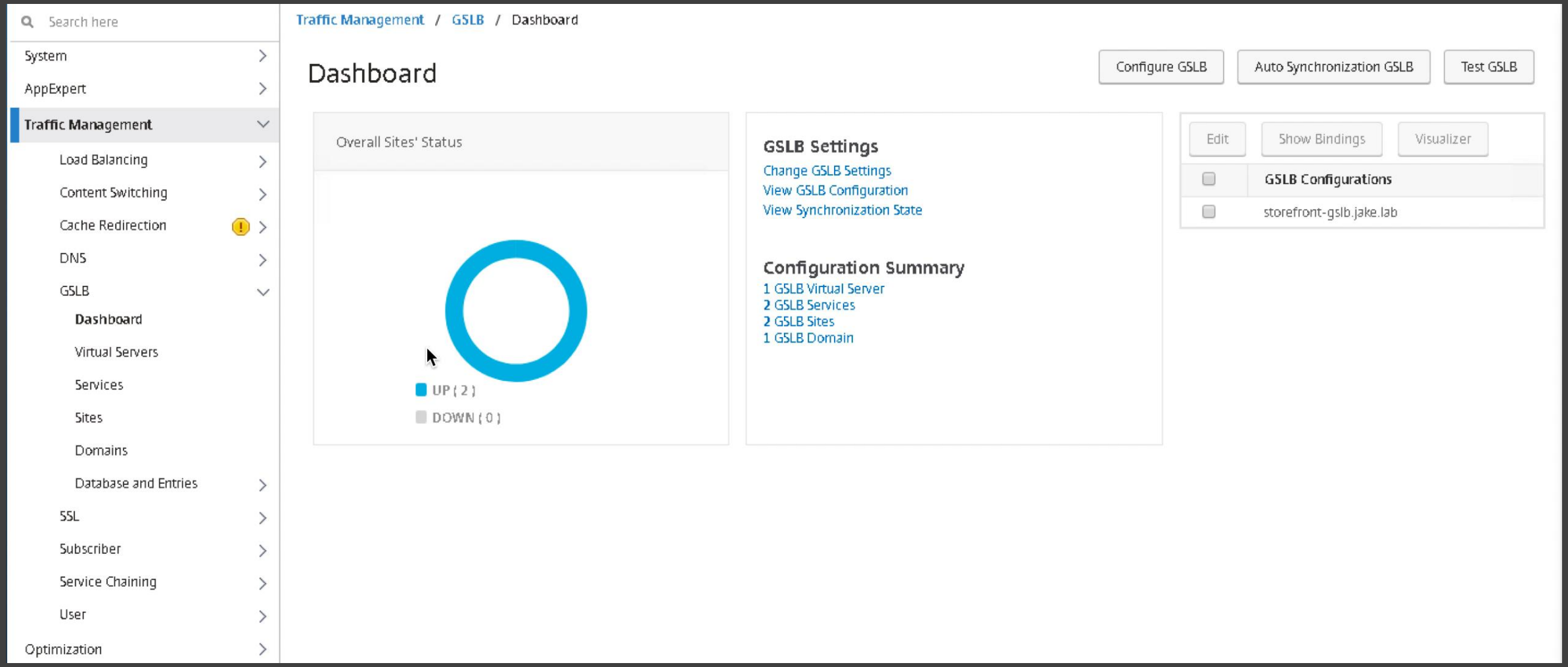
https://docs.citrix.com/en-us/netscaler/12/global-server-load-balancing/configuring-gslb-by-using-a-wizard.html

Step 3 – Setting up the GSLB vServers, Services, and Domains

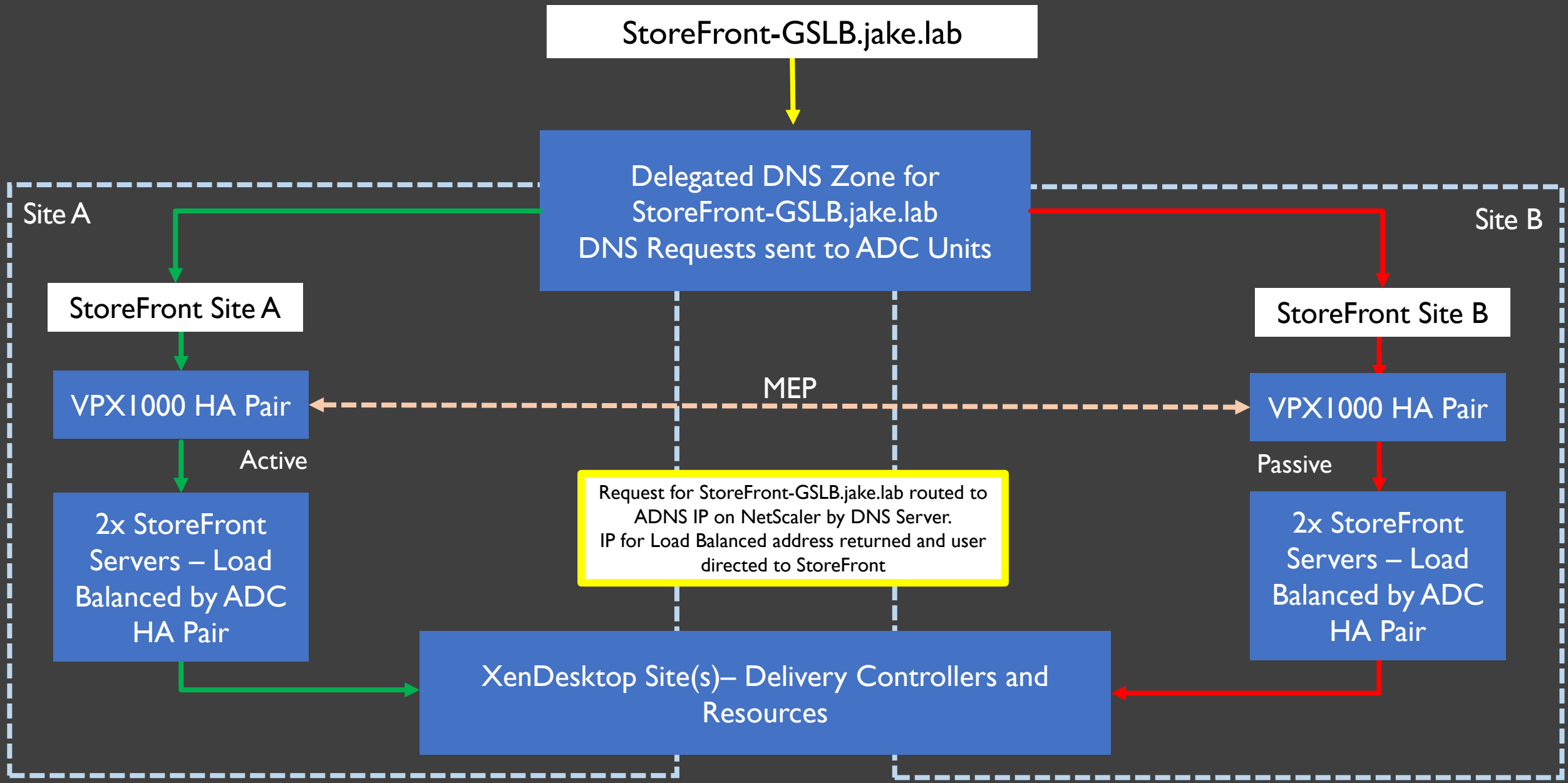


Step 3 – Synchronizing the Configuration between GSLB Sites

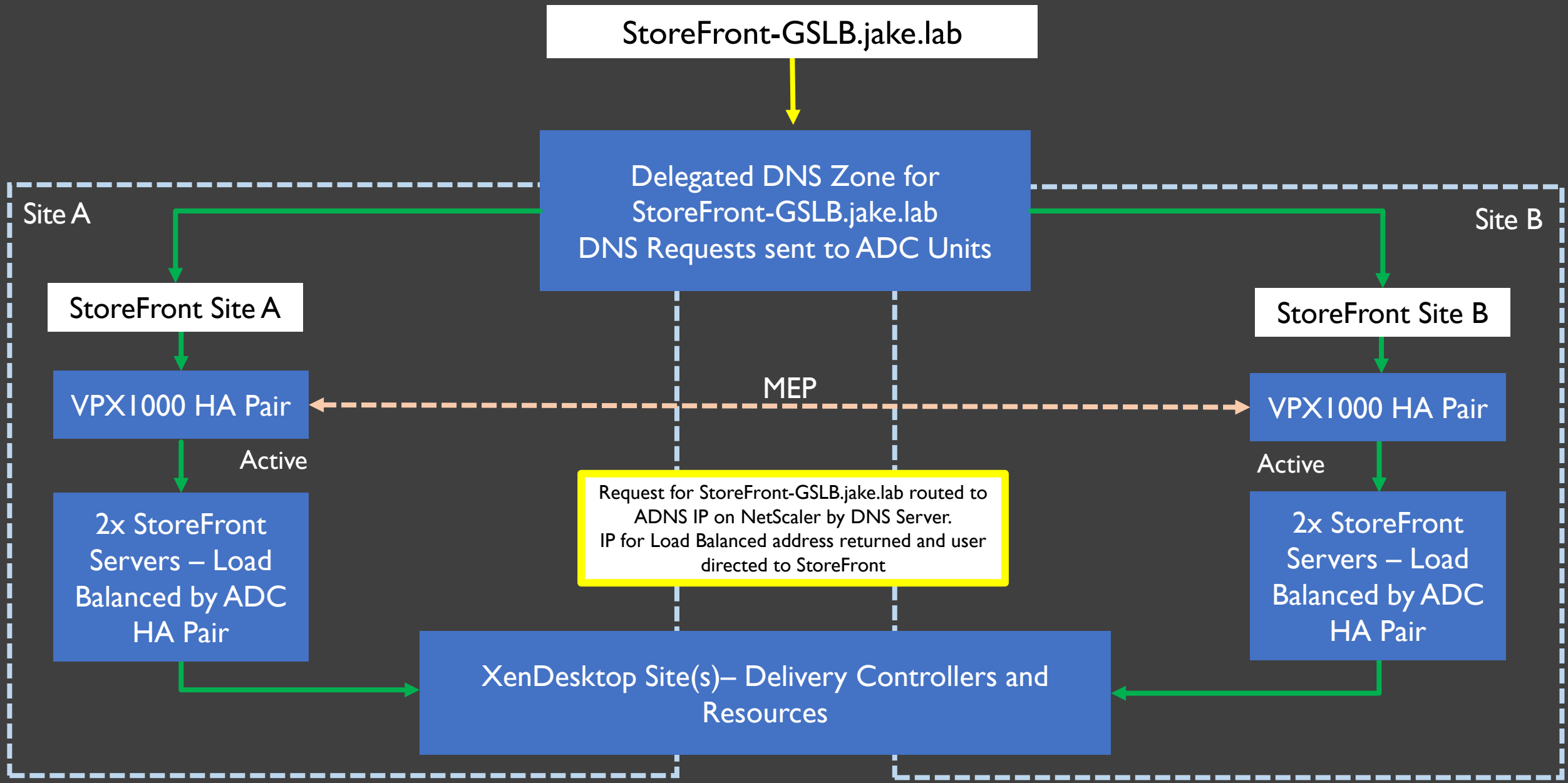
Finally – a configuration Sync from the master node to ensure all nodes are in Sync and ready to go!



Lab Environment – with GSLB, in Active / Passive

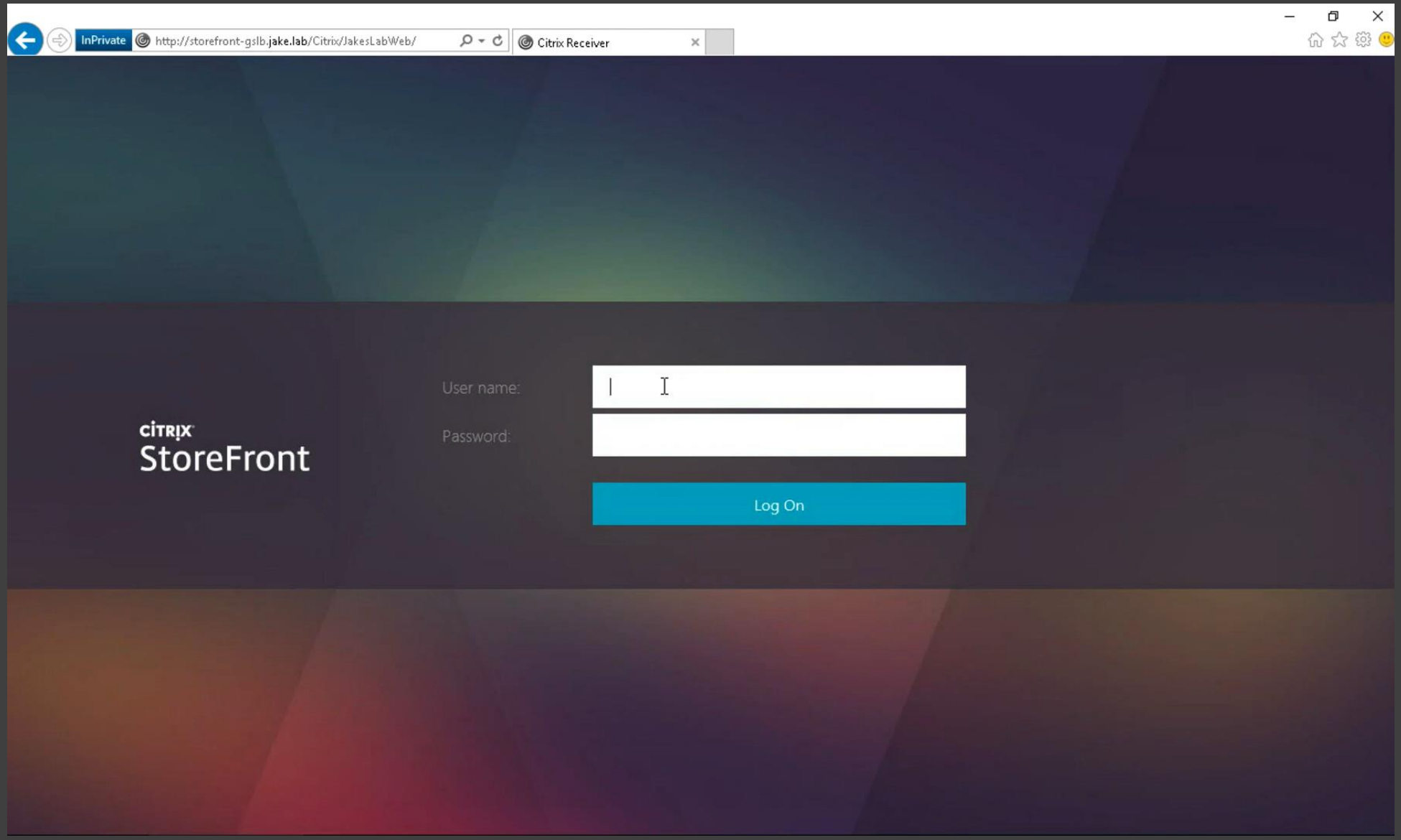


Lab Environment – with GSLB, in Active / Active



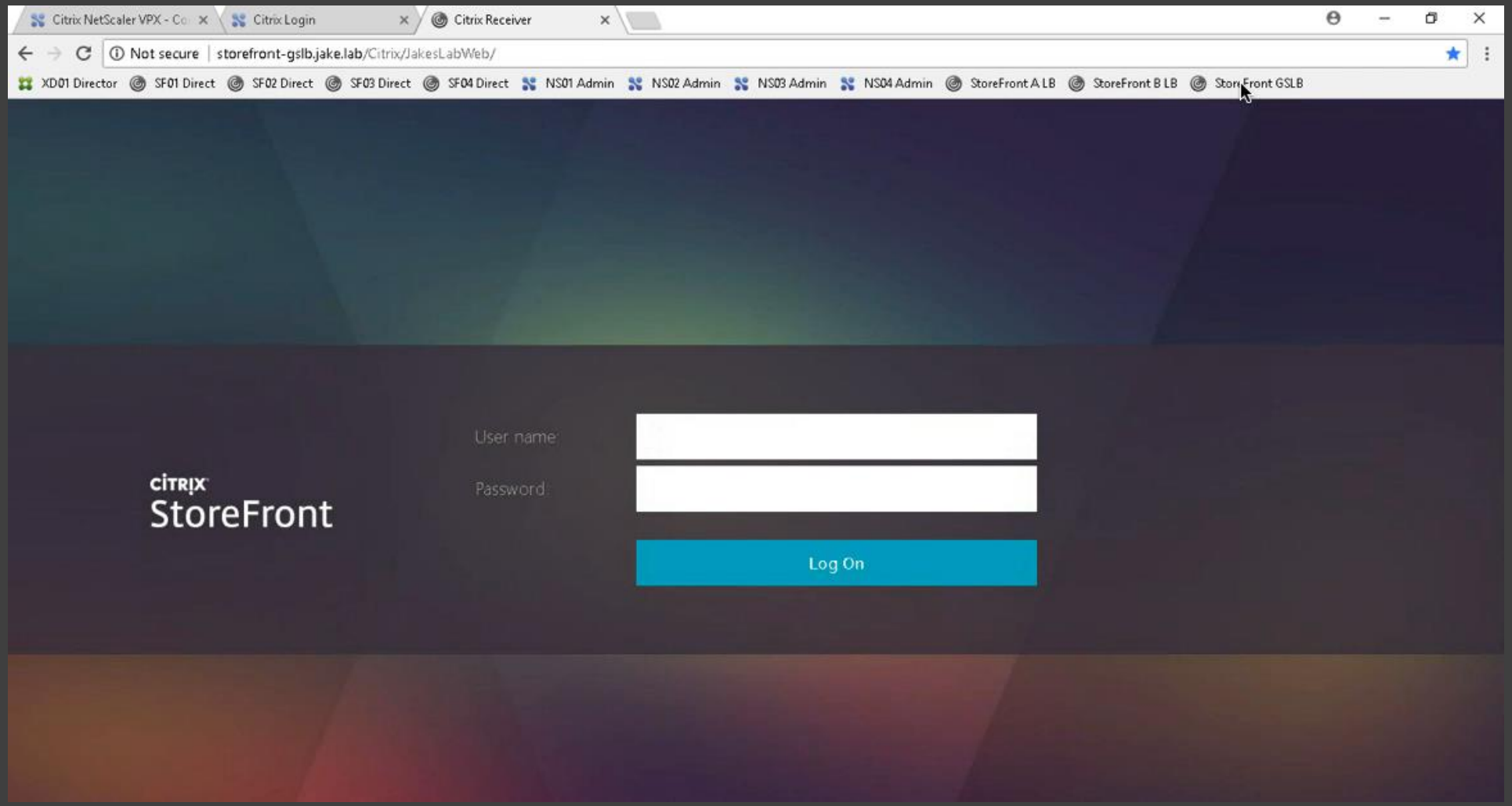
Citrix ADC - GSLB with StoreFront

Testing – All Services Operational



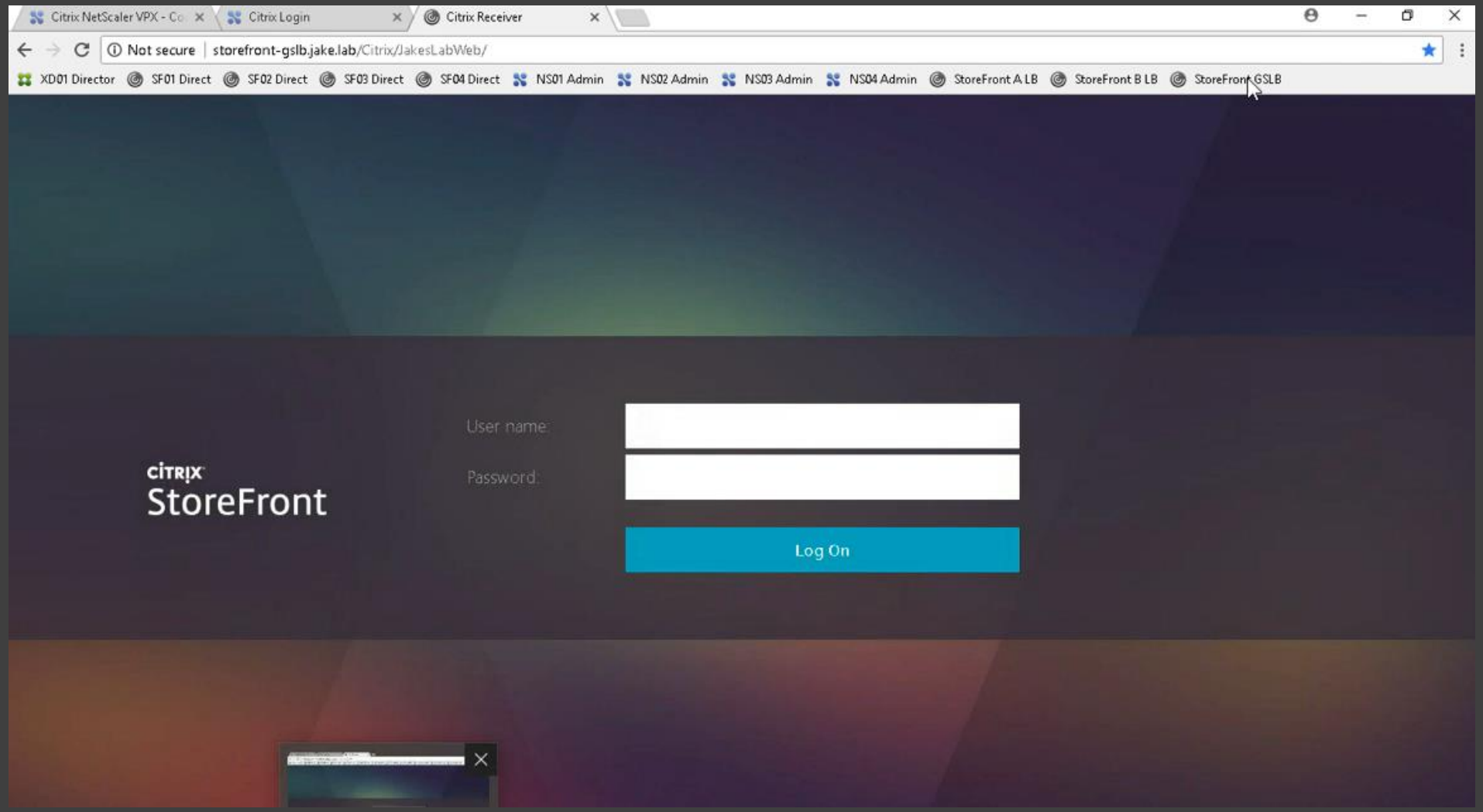
Citrix ADC - GSLB with StoreFront

Testing – Operation with 2x StoreFront down in DataCenter A



NetScaler GSLB with StoreFront

Testing – Operation with loss of Site – both 2x StoreFront and 2x NetScaler down in DataCenter A



Questions

Thank You!

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