

DEPLOYMENT GUIDE

A10 VTHUNDER ADC DEPLOYMENT IN A NUTANIX AHV CLUSTER



OVERVIEW

Business-critical applications require an agile and hyper-converged infrastructure to reduce complexity, lower costs and speed workflows. As a result, many organizations have adopted Nutanix to simplify their IT environments. The all-in-one characteristics of the Nutanix hyper-converged solution consolidates all functional elements (compute, storage and networking) at the hypervisor level to eliminate scalability bottlenecks.

A10 Networks is a proven solution and holds a “Nutanix Ready” certification as a solution ecosystem partner under the Nutanix’s technology alliance partner program.

The A10 Thunder® Application Delivery Controller (ADC) works seamlessly with any business application to ensure fast, secure, and consistent application delivery. Adding the A10 Thunder ADC solution on Nutanix platform enables organizations to enjoy the benefits of a hyper-converged infrastructure, while providing the secure, elastic and high-performance load balancing solution for business-critical applications with deep visibility.

This guide provides the step by step process required to install and deploy the A10 vThunder ADC in Nutanix AHV cluster.

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TABLE OF CONTENTS

<i>OVERVIEW</i>	2
<i>DEPLOYMENT PREREQUISITES</i>	4
<i>DEPLOYMENT ARCHITECTURE</i>	4
<i>DEPLOYING VTHUNDER IN NUTANIX AHV CLUSTER</i>	5
<i>Installing vThunder on Nutanix AHV</i>	5
<i>Configuring the vThunder ADC using AppCentric Templates</i>	12
<i>SUMMARY</i>	18
<i>APPENDIX A</i>	19
<i>vThunder ADC CLI Configuration</i>	19
<i>ABOUT A10 NETWORKS</i>	20

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DEPLOYMENT PREREQUISITES

To deploy the vThunder® ADC in a Nutanix AHV cluster, the following components are required:

- To be able to access information in the Nutanix clusters
- A Nutanix AHV cluster, pre-configured for a network setting and storage container
- A VM instance to deploy vThunder with a four-core vCPU, 16 GB RAM and 20 GB storage
- A A10 vThunder image – ACOS® 4.1.4-GR1-P2_151.qcow2 is used in this guide. The [Image](#), including QCOW or other format such as OVA, ISO, can be downloaded from A10 Networks website (*Credentials are required to login to the support portal*)

NOTE: Storage containers are required to upload the vThunder image. Network settings define the VLAN and associate IP subnet and gateway for the vThunder interface at Nutanix cluster.

NOTE: The Nutanix AHV runs as a node (host), the group of nodes forms a Nutanix cluster for redundancy and resiliency purposes. Customers can build redundancy among the VMs using the nodes cluster. The Nutanix cluster is managed by the Prism Central console.

DEPLOYMENT ARCHITECTURE

For this deployment guide, one vThunder ADC is deployed to load-balance application traffic between two web servers in the Nutanix AHV cluster, as shown below.

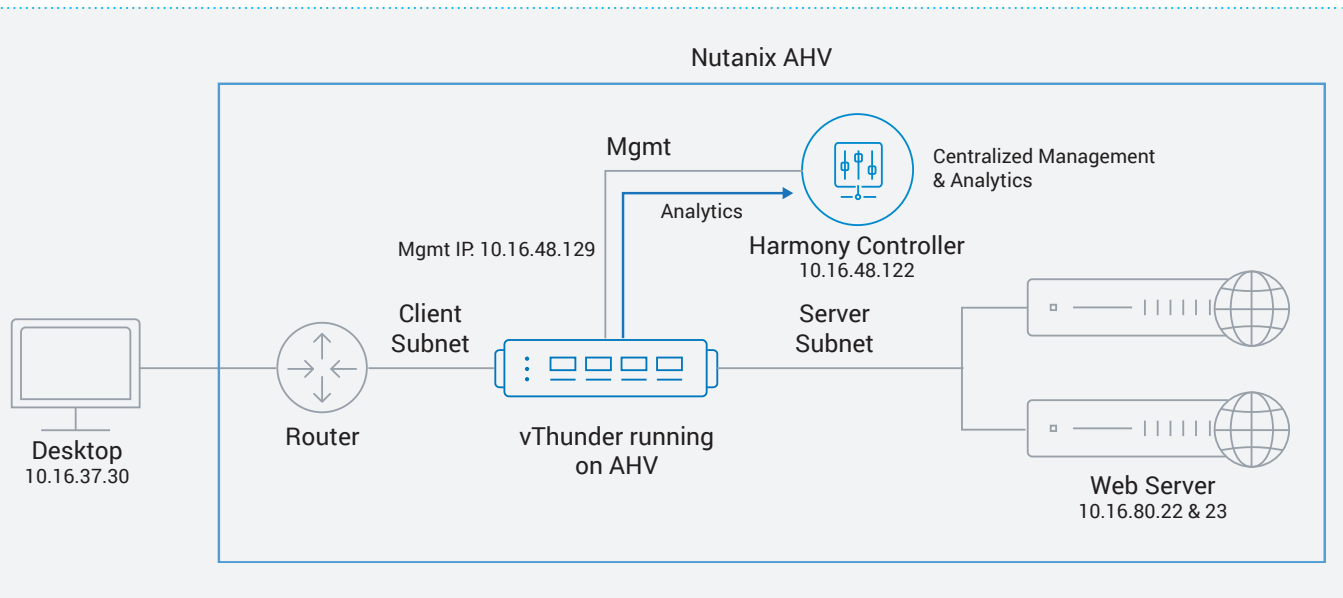


Figure 1: Topology diagram used for this deployment guide

DEPLOYING VTHUNDER IN NUTANIX AHV CLUSTER

This section describes step-by-step deployment instructions for the vThunder ADC installation on Nutanix AHV.

INSTALLING VTHUNDER ON NUTANIX AHV

ACCESS TO NUTANIX AHV

Following image shows Nutanix AHV cluster configured for networking and storage.

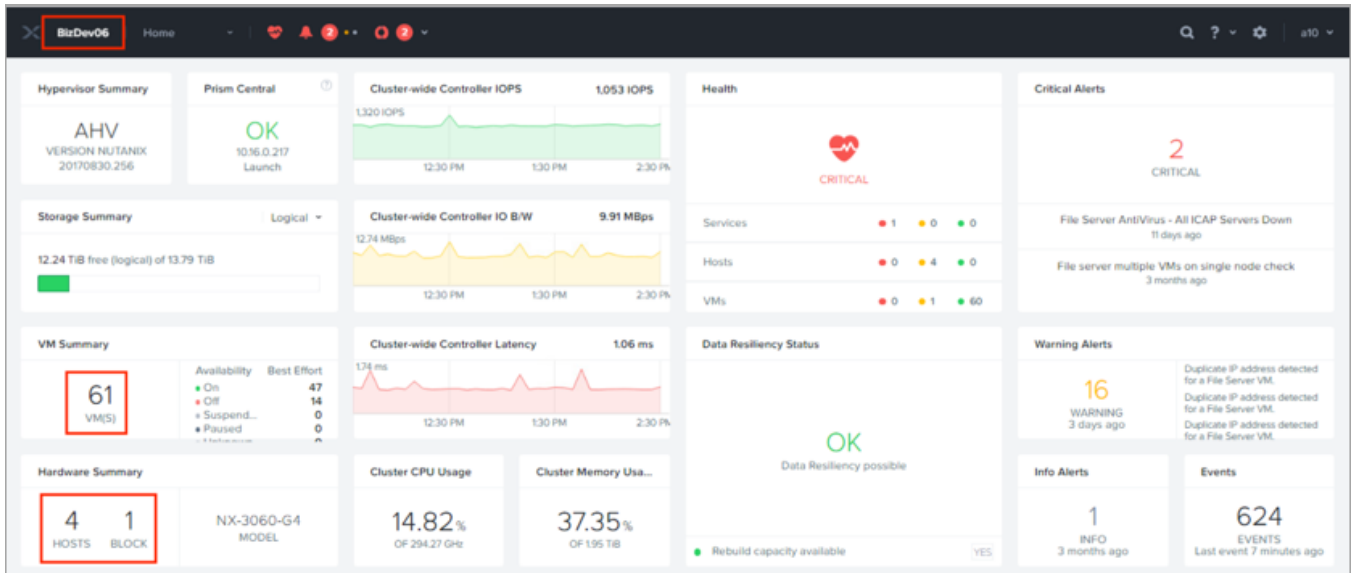


Figure 2: Shows the cluster name, VM summary and hosts registered to this cluster

UPLOADING THE A10 VTHUNDER IMAGE TO THE NUTANIX AHV CLUSTER

- Log in to the Nutanix cluster web-UI (web-console) using a web browser.
- Upload the previously downloaded A10 vThunder_qcow2 image into Nutanix storage container under the “image configuration” section.

NOTE: Nutanix clusters can be accessed via Prism Central for centralized management or directly by accessing the cluster interface IP address.

Follow the steps to upload an image to storage container:

1. From the top drop-down menu – Select “Settings”
2. From the left menu select the “image Configuration”
3. Click on “Upload Image” tab

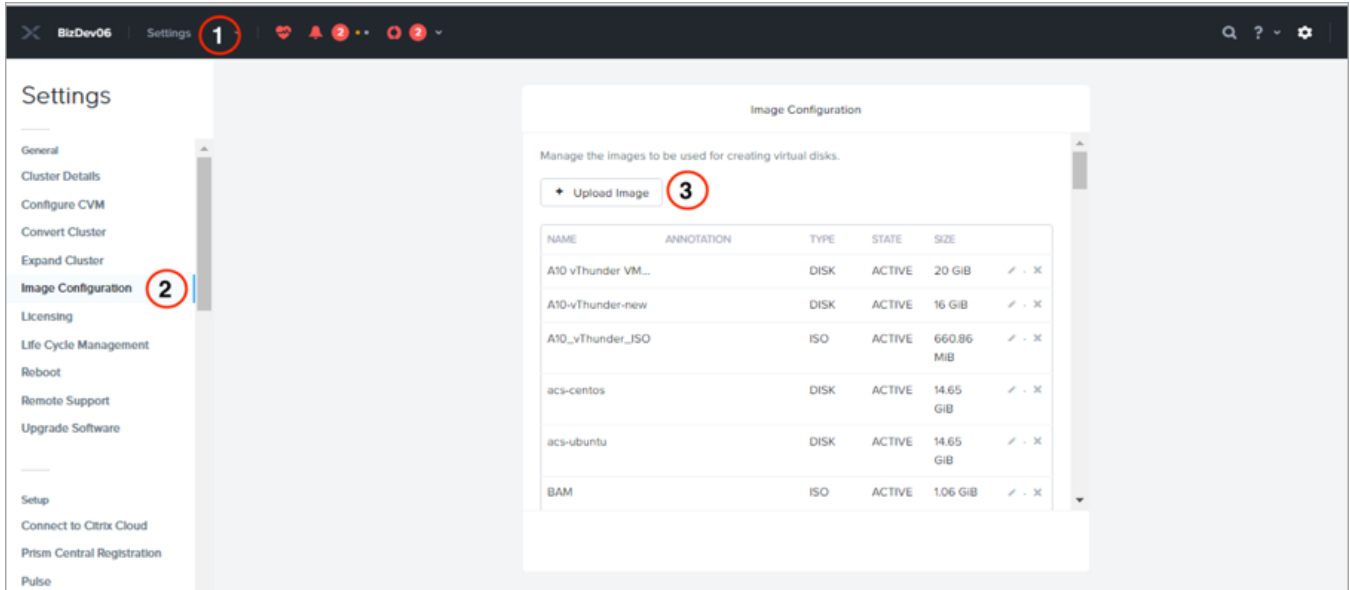


Figure 3: Uploading the A10 vThunder image to Nutanix storage cluster

4. Once the pop-up window opens, add the following:
 - a. Assign a name to the image
 - b. Select image type to be disk
 - c. Select storage container (created previously as a prerequisite)
 - d. Select the option to upload a file and point to the file location from the local system to upload the image
 - e. Click "Save"

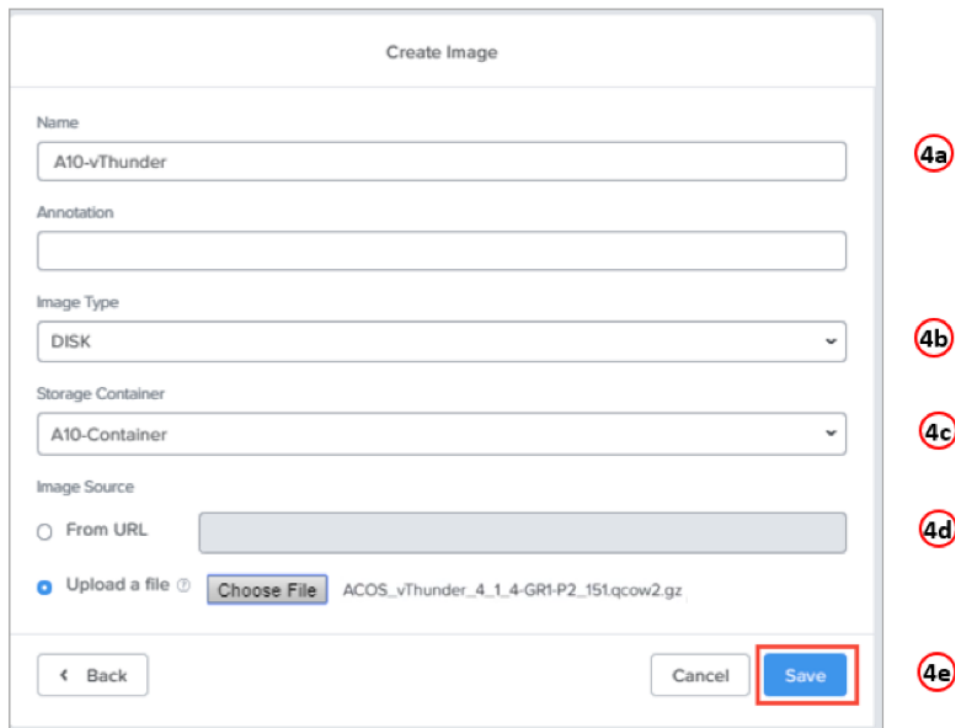


Figure 4: Uploading A10 a vThunder image into the storage container

CREATING A VM FOR VTHUNDER IN NUTANIX AHV

- On the Nutanix cluster web-UI, select the VM from the drop-down menu and navigate to create the VM (this VM will be used to deploy A10 vThunder ADC).

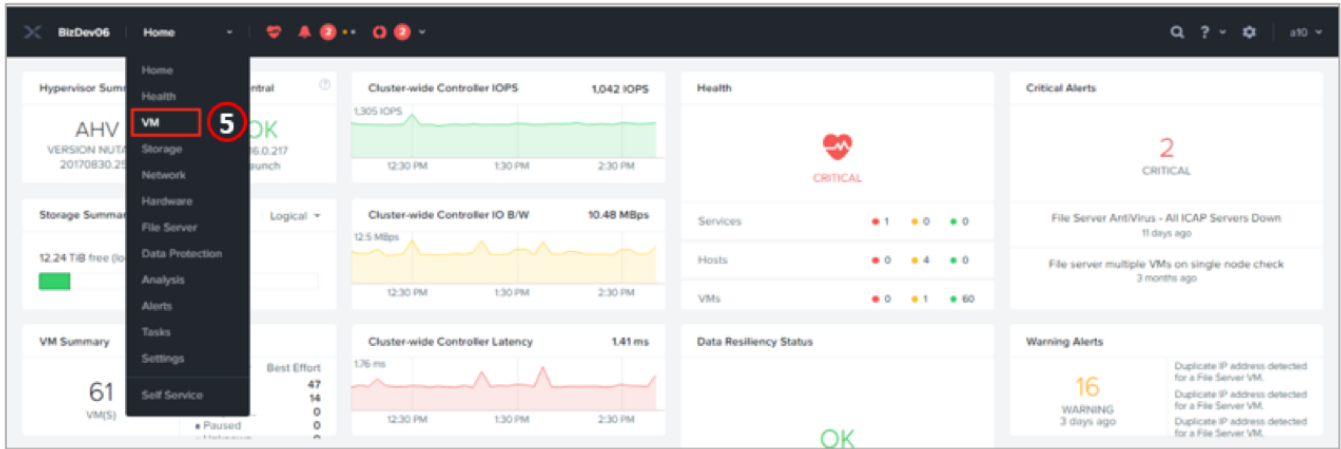


Figure 5: Creating a VM in Nutanix AHV to deploy vThunder

- Enter the following for this new VM,
 - Assign a name to the VM
 - Add a description
 - Define the number of vCPUs
 - Define the memory
 - By default, disks are link to CD-ROM but since our qcow2 image is already uploaded to the storage container, click on the cross sign to delete this disk
 - Click on "Add New Disk" to link the previously uploaded image to disks

? ✕

Create VM

General Configuration

Name

Description

Timezone
 Local ▾

Use this VM as an agent VM

Compute Details

VCPU(S)

Number Of Cores Per Vcpu

Memory
 GIB

Disks + Add New Disk

BOOT	DEVICE	TYPE	ADDRESS	PARAMETERS	
<input type="radio"/>	CD-ROM			EMPTY=true; BUS=ide	✎ ✕

Volume Groups

Please create a VM before you can add a volume group.

+ Add Volume Group

6a

6b

6c

6d

6f

6e

Figure 6: Adding CPU, memory and Disk to the VM

7. Select operation to be "Clone from Image Service"
8. From the drop-down menu, select the storage container created earlier. Click "Add"

The screenshot shows the 'Add Disk' dialog box with the following configuration:

- Type: DISK
- Operation: Clone from Image Service
- Bus Type: SCSI
- Image: ACOS_vThunder_4_1_4-GR1-P2_151.qcow2.gz
- Size (GiB): 100
- Index: Next Available

Buttons: Cancel, Add

Figure 7: Link storage container to the VM

ADDING NICs AND ASSOCIATE VLANS TO VM

Scroll down to add NICs and associate VLANs for management and data network to the VM.

9. Click on "Add New NIC"
 10. From the drop-down, select VLAN (created previously as a prerequisite)
 11. Click "Add"
- Repeat the steps 6-8 two more time since we need to add three NICs

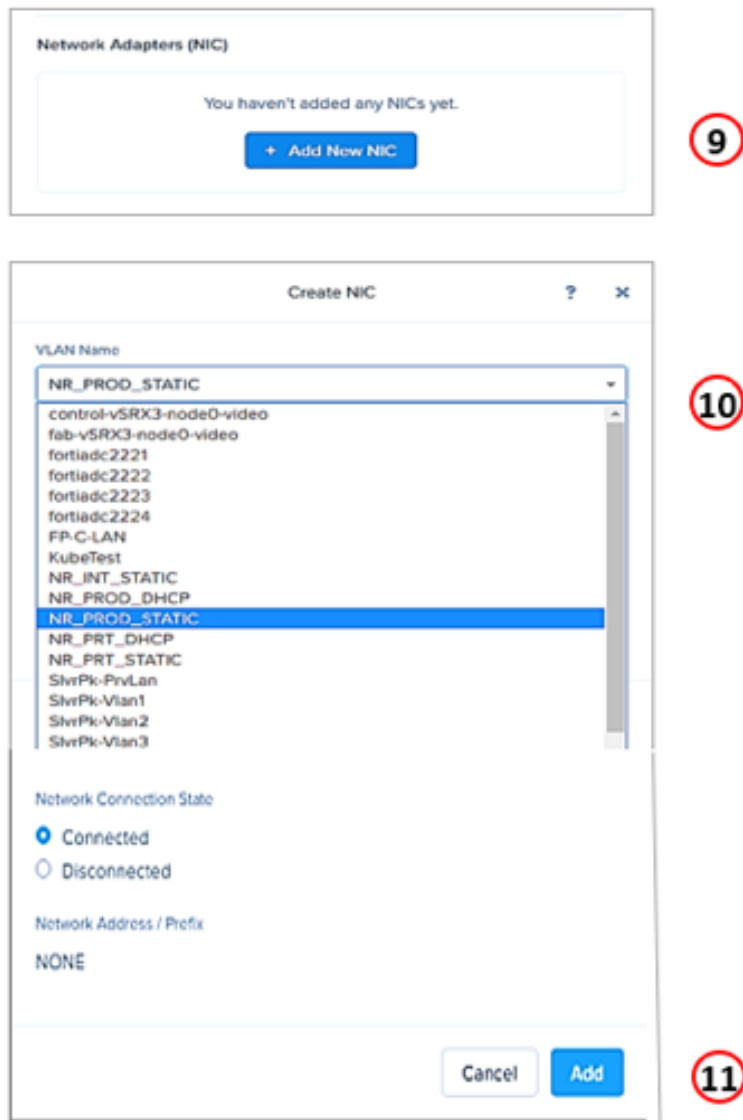


Figure 8: Adding NICs and associate VLANs to the VM

Figure 9 below shows three NIC interfaces and each associated VLAN (client, server and management network) based on the above topology architecture.

Network Adapters (NIC) + Add New NIC

VLAN ID	VLAN NAME	MAC	REQUESTED ...
vlan.3116	NR_PROD_S TATIC		
vlan.0	NR_PROD_D HCP		
vlan.3180	NR_INT_STA TIC		

Figure 9: Shows three NICs for client, server and management network.

NOTE: You can also setup the host affinity to link your VM to more than one host to ensure VM availability even during the node failure.

At this point, the VM is configured and will be listed under the VM "Table" section on the web-UI of the AHV cluster. Please refer to Nutanix [documentation](#) for more details.

VM Name	Host	IP Address	Cores	Memory Capacity	Storage	CPU Usage	Memory Usage	Controller Read IOPS	Controller Write IOPS	Controller IO Bandwidth	Controller Avg IO Latency	Bac...	Flash Mode
A10 vThunder-ADC	BizDev06-C/AHV	10.1...	4	16 GiB	15.82 GiB / 20 GiB	77.2 %	73.8 %	0	15	121 KBps	0.97 ms	Yes	No
A10 vThunder-ADC1-Clone			4	16 GiB	10.97 GiB / 20 GiB	0%	0%	-	-	-	-	Yes	No
A10-Client-VM	BizDev06-B/AHV	10.1...	2	4 GiB	1.16 GiB / 20 GiB	1.4%	20.8 %	0	0	5 KBps	1.18 ms	Yes	No
A10-Harmony Controller	BizDev06-C/AHV	10.1...	16	64 GiB	104.52 GiB / 1.17 TiB	14.71 %	99.3 %	0	28	441 KBps	3.62 ms	Yes	No
A10-Lightning-ADC	BizDev06-B/AHV	10.1...	4	4 GiB	3.01 GiB / 20 GiB	0.28 %	50.6 %	0	0	1 KBps	8.05 ms	Yes	No

Figure 10: Shows the newly created VM (A10 vThunder-ADC) under the VM "Table"

ACCESS TO THE A10 VTHUNDER

On the Nutanix cluster web-UI, select the newly launched vThunder VM and power it on. There is an option to access the console of the VM to monitor the boot progress if required.

Once the VM completes the boot process, vThunder ADC can be accessed either from a command line interface (CLI) using the console or SSH access, or from a graphical user interface (GUI) over HTTPS access for further configuration.

Default username: admin

Default password: a10

Default IP address of the device: 172.31.31.31

NOTE: The first configuration to consider is to change the management IP address for CLI and GUI access.

CONFIGURING THE VTHUNDER ADC USING APPCENTRIC TEMPLATES

The A10 Thunder product comes with AppCentric templates, which are an extension of ACOS GUI providing a wizard-based configuration tool to help with quick and easy application deployment. This section describes how to configure the Thunder ADC in an SSL offload deployment using AppCentric Templates.

To access the templates, navigate to **System > App Templates** on the Thunder ADC GUI. Once template page is open, select “**SSL Offload**” from the menu on the right side and click “+ Add”

There are three main sections in the templates for SSL Offload:

- **Dashboard:** The dashboard gives users a view of different statistics related to the current state of the system, including traffic statistics.
- **Wizard:** The wizard provides users with a guided flow for deployment.
- **Configuration:** This section provides users with the current configuration of the device, as well as access to some advanced options.

WIZARD – DEPLOYMENT CHOICE

Configuration/deployment of the vThunder ADC will be done in the wizard section. The “deployment choice” is the first step and you will choose the deployment topology for the ADC solution.

1. Navigate to **Wizard > DEPLOYMENT CHOICE**
2. Select the topology you will be working with. For this deployment guide, **INLINE** topology is selected.
3. Click **NEXT**

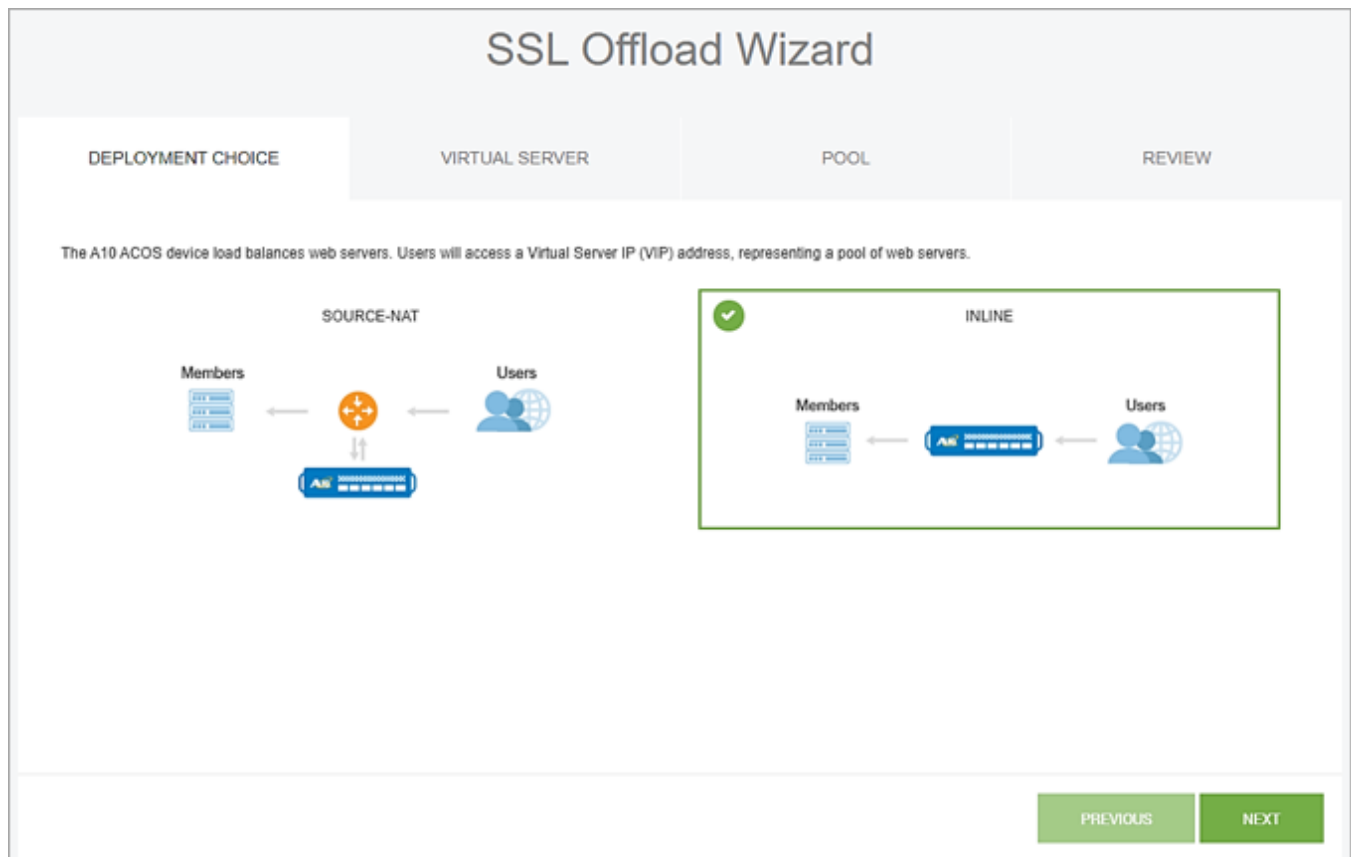


Figure 11: Wizard – DEPLOYMENT CHOICE

WIZARD – VIRTUAL SERVER

The VIRTUAL SERVER is the second step. In this step, you will do the following:

1. **Partition:** Select shared (choose the appropriate partition based on your environment)
2. **IP Address:** Enter 10.16.37.100 as the virtual server IP
3. **Name:** Define the name for virtual server vip_10_16_37_100
4. Select **HTTP** to enable service on port **80**
5. Select **HTTPS** to enable service on port **443**
6. **SSL Mode:** Select SSL Offload

NOTE: In this mode, Thunder ADC will terminate the TLS/SSL connection from clients and use HTTP communication (in clear text) between servers to offload the SSL processing from the web server.

7. **SSL Certificate/Key:** Import the SSL server certificate for your server/services. In this guide, it's using self-signed certificate and key "test_cert"
8. Click **NEXT**

The screenshot displays the 'SSL Offload Wizard' interface, specifically the 'VIRTUAL SERVER' step. The wizard is divided into four tabs: 'DEPLOYMENT CHOICE', 'VIRTUAL SERVER', 'POOL', and 'REVIEW'. The 'VIRTUAL SERVER' tab is active, showing the following configuration options:

- Partition:** shared
- IP Address:** 10.16.37.100
- Name:** vip_10_16_37_100
- HTTP:** Enable, Port: 80
- HTTPS:** Enable, Port: 443
- SSL Mode:** SSL Offload
- SSL Certificate/Key:** test_cert (with 'Create' and 'Import' links)
- Certificate Chain:** (with 'Import' link)
- SSL Everywhere:** Enable
- Access Logs:** Enable

To the right of the configuration fields is a diagram illustrating the 'INLINE' configuration. It shows a central 'ADC' (Application Delivery Controller) box with arrows pointing to 'Members' on the left and 'Users' on the right. Below the diagram is the label 'INLINE'. At the bottom right of the wizard, there are two green buttons: 'PREVIOUS' and 'NEXT'.

Figure 12: Wizard – VIRTUAL SERVER

WIZARD – POOL

1. **LB Method:** Select “least-connection” as the load balancing method. Select other options based on your environment.
2. **Persistence:** Select the “Cookie” session stickiness option. Select other options depending on your preference
3. Click **NEXT**

The screenshot displays the 'SSL Offload Wizard' interface, specifically the 'POOL' configuration step. The wizard is divided into four stages: 'DEPLOYMENT CHOICE', 'VIRTUAL SERVER', 'POOL', and 'REVIEW'. The 'POOL' stage is currently active, indicated by a green progress bar. On the left, there are three configuration options: 'LB Method' set to 'least-connection', 'Persistence' set to 'Cookie', and 'Health Monitor' with an unchecked 'Enable' checkbox. On the right, a diagram illustrates the 'INLINE' load balancing architecture. It shows 'Users' on the right, represented by a globe icon, sending traffic to a central blue box labeled 'SSL Offload' with 'SSL' and 'HTTP' labels. This box then distributes traffic to a group of 'Members' on the left, represented by server rack icons. Below the diagram, the word 'INLINE' is centered. At the bottom right, there are two green buttons labeled 'PREVIOUS' and 'NEXT'.

Figure 13: Wizard – POOL

4. **Members:** Enter the IP addresses and port number of the two web servers “10.16.80.22:80” and “10.16.80.23:80”
5. Click **NEXT**

SSL Offload Wizard

DEPLOYMENT CHOICE VIRTUAL SERVER **POOL** REVIEW

Pool

Members Port Add

- 10.16.80.22:80
- 10.16.80.23:80

Members Users

SSL Offload

INLINE

PREVIOUS NEXT

Figure 14: Wizard – POOL (second step)

WIZARD – REVIEW AND COMPLETE

At this step, you can review and confirm the configuration you've done in the previous steps.

1. Once confirmed, click **FINISH** to finalize the ADC configuration. This action opens a new pop-up window showing the actual CLI-based configuration.

DEPLOYMENT CHOICE	VIRTUAL SERVER	POOL	REVIEW
DEPLOYMENT CHOICE Name: INLINE	VIRTUAL SERVER Name: vip_10_16_37_100 IP: 10.16.37.100 SSL Everywhere: Disabled Access logs: Disabled	POOL LB Method: least-connection Persistence: Cookie Members: 2 member(s) added	
PARTITION Partition: shared	HTTP Port: 80		
	HTTPS Port: 443 SSL Mode: SSL Offload SSL Certificate/Key: test_cert Certificate Chain		

PREVIOUS **FINISH**

Figure 15: Wizard – REVIEW

2. Click **APPLY** to activate the configuration on the vThunder ADC device.

This completes the vThunder ADC configuration in an SSL offload deployment.

```
Configuration
```

```
active-partition shared
!  
slb server srv_10_16_80_22 10.16.80.22
  user-tag act_https_srv_10_16_80_22
  port 80 tcp
  user-tag act_https_vip_10_16_37_100_server_port_80
  sampling-enable total_conn
  sampling-enable total_fwd_bytes
  sampling-enable total_rev_bytes
  sampling-enable total_req
!  
slb server srv_10_16_80_23 10.16.80.23
  user-tag act_https_srv_10_16_80_23
  port 80 tcp
  user-tag act_https_vip_10_16_37_100_server_port_80
  sampling-enable total_conn
  sampling-enable total_fwd_bytes
  sampling-enable total_rev_bytes
  sampling-enable total_req
!
```

Figure 16: Wizard – Apply Configuration

SUMMARY

This document describes how to install and deploy the vThunder ADC as a load balancer in a Nutanix AHV cluster using the A10 AppCentric templates. The Nutanix hyper-converged solution reduces the complexity and operational overhead of managing applications in a multi-cloud environment. A10 vThunder ADC in a Nutanix platform provides a secure, elastic, high-performance load balancing and analytics solution for business-critical applications.

This joint solution demonstrates the compatibility of the A10 vThunder ADC with the Nutanix hyper-converged solution.

APPENDIX A

VTHUNDER ADC CLI CONFIGURATION

```
active-partition shared
!
slb server srv_10_16_80_22 10.16.80.22
  user-tag act_https_srv_10_16_80_22
  port 80 tcp
  user-tag act_https_vip_10_16_37_100_server_port_80
  sampling-enable total_conn
  sampling-enable total_fwd_bytes
  sampling-enable total_rev_bytes
  sampling-enable total_req
!
slb server srv_10_16_80_23 10.16.80.23
  user-tag act_https_srv_10_16_80_23
  port 80 tcp
  user-tag act_https_vip_10_16_37_100_server_port_80
  sampling-enable total_conn
  sampling-enable total_fwd_bytes
  sampling-enable total_rev_bytes
  sampling-enable total_req
!
slb service-group vip_10_16_37_100_80_http_sg tcp
  user-tag act_https_vip_10_16_37_100_sg_http_80
  member srv_10_16_80_22 80
  member srv_10_16_80_23 80
  method least-connection
!
slb template persist cookie Ck_vip_10_16_37_100_80
  user-tag act_https_Ck_vip_10_16_37_100_80
!
slb template http Http_templ_vip_10_16_37_100_80
  user-tag act_https_vip_10_16_37_100_80
!
slb service-group vip_10_16_37_100_443_https_sg tcp
  user-tag act_https_vip_10_16_37_100_sg_https_443
  member srv_10_16_80_22 80
  member srv_10_16_80_23 80
  method least-connection
!
slb template cipher Ccipher_vip_10_16_37_100_443
  user-tag act_https_Ccipher_vip_10_16_37_100_443
  TLS1_RSA_AES_128_SHA
  TLS1_RSA_AES_256_SHA
  TLS1_RSA_AES_128_GCM_SHA256
  TLS1_RSA_AES_256_GCM_SHA384
  TLS1_ECDHE_RSA_AES_128_SHA
  TLS1_ECDHE_RSA_AES_256_SHA
  TLS1_ECDHE_RSA_AES_128_SHA256
  TLS1_ECDHE_RSA_AES_128_GCM_SHA256
!
slb template client-ssl Cssl_vip_10_16_37_100_443
  user-tag act_https_Cssl_vip_10_16_37_100_443
  cert test_cert
  key test_cert
  template cipher Ccipher_vip_10_16_37_100_443
  disable-ssl3
  enable-tls-alert-logging fatal
!
slb template persist cookie Ck_vip_10_16_37_100_443
```

```

user-tag act_https_Ck_vip_10_16_37_100_443
!
slb template http Http_tmpl_vip_10_16_37_100_443
user-tag act_https_vip_10_16_37_100_443
!
slb common
enable-l7-req-acct
!
slb virtual-server vip_10_16_37_100 10.16.37.100
user-tag act_https_vip_10_16_37_100_virtualserver
port 80 http
user-tag act_https_vip_10_16_37_100_80_http
template http Http_tmpl_vip_10_16_37_100_80
template persist cookie Ck_vip_10_16_37_100_80

```

```

service-group vip_10_16_37_100_80_http_sg
sampling-enable total_req
sampling-enable total_fwd_bytes
sampling-enable total_rev_bytes
port 443 https
user-tag act_https_vip_10_16_37_100_443_https
template client-ssl Cssl_vip_10_16_37_100_443
template http Http_tmpl_vip_10_16_37_100_443
template persist cookie Ck_vip_10_16_37_100_443
service-group vip_10_16_37_100_443_https_sg
sampling-enable total_req
sampling-enable total_fwd_bytes
sampling-enable total_rev_bytes
!

```

ABOUT A10 NETWORKS

A10 Networks (NYSE: ATEN) provides Reliable Security Always™ through a range of high-performance solutions that enable intelligent automation with deep machine learning to ensure business critical applications are protected, reliable and always available. Founded in 2004, A10 Networks is based in San Jose, Calif., and serves customers globally with offices worldwide.

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