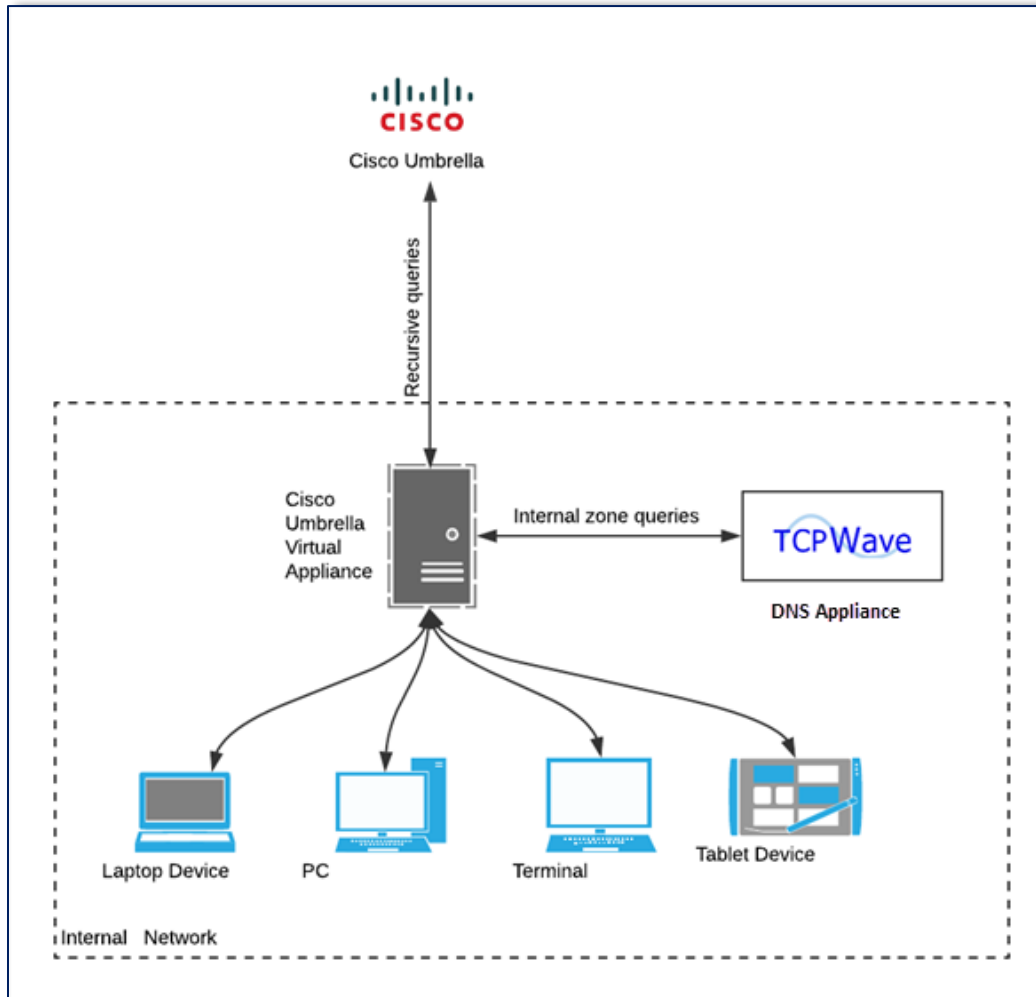


# Using Cisco Umbrella with TCPWave®



# TCPWave's DNS Appliances - Cisco Umbrella

*The TCPWave DNS appliances can be used as an Authoritative DNS appliance for internal DNS zones and the recursive DNS queries can be forwarded to Cisco Umbrella using the virtual appliances.*



# Cisco Umbrella Virtual Appliances

The Cisco Umbrella virtual appliances can be downloaded by logging in to the Cisco Umbrella.

Here are the instructions to download and install the virtual appliances:

<https://docs.umbrella.com/deployment-umbrella/docs/3-deploy-the-vas>

The virtual appliances should have the DNS configured for forwarding the internal DNS queries.

<https://docs.umbrella.com/deployment-umbrella/docs/5-configuring-the-vas>

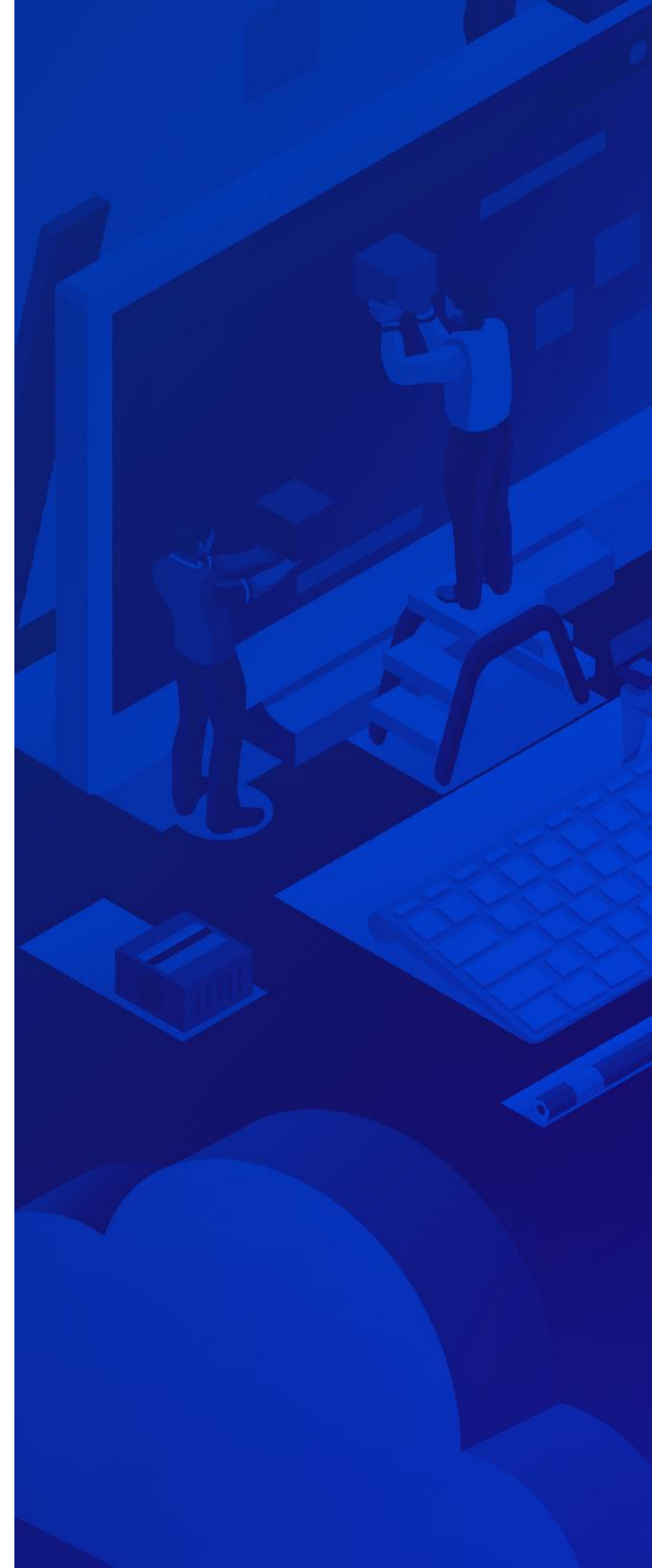
From Virtual appliance terminal, add the TCPWave DNS appliances using the following command:

- `config va localdns <TCPWave DNS server1> <TCPWave DNS server2> <TCPWave DNS server3>`

## TCPWave DNS Appliance Configuration

The TCPWave DNS appliance can be configured as DNS Authoritative appliance and the virtual appliances deployed can forward the internal DNS queries to TCPWave DNS appliance.

The Cisco Umbrella “**Domain Management**” must be configured with the internal zones. These zones will be updated by the Cisco Umbrella to the virtual appliances, then the internal queries which are received by the virtual appliances will be forwarded to the TCPWave appliance which are configured on the virtual appliances.





## Forwarding the Queries to Cisco Virtual Appliances

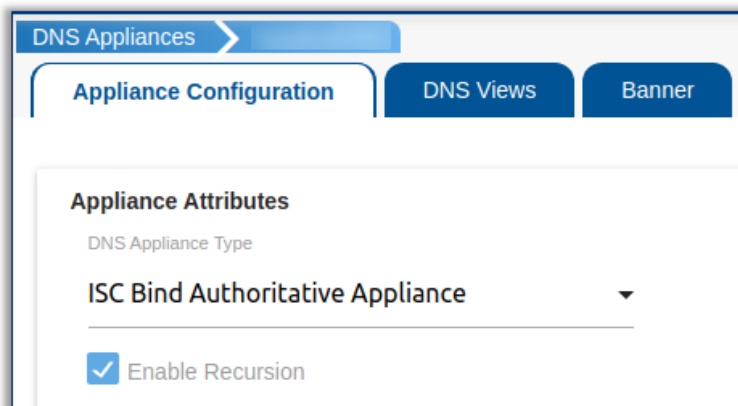
The TCPWave appliances can be configured to forward the DNS queries to the virtual appliances and having all the clients first reach the TCPWave appliance. This will provide more insights into the DNS queries with TCPWave reporting.

When the TCPWave DNS appliance is set to forward the queries to the virtual appliances, the reporting data at Cisco Umbrella will not show the internal IP addresses of each client which queried the DNS instead you can see the TCPWave DNS appliance IP as Internal IP for all the queries forwarded to the Cisco Umbrella in the report.

Also, this method of forwarding the queries to the virtual appliances will not allow applying the policies based on “**internal networks**” when the TCPWave DNS appliance is configured to serve multiple internal networks.

***Note:** TCPWave configuration is not required when forwarding the queries to the virtual appliances.*

## Enable Recursion in TCPWave



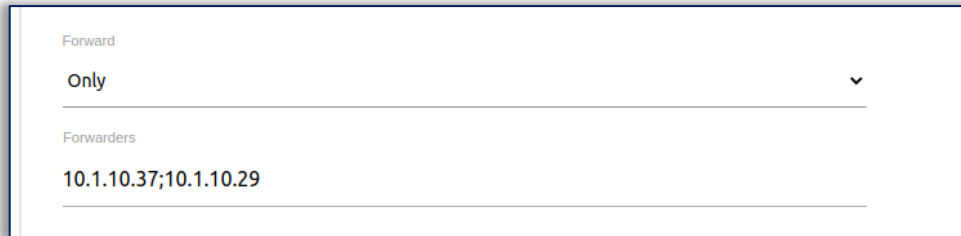
The screenshot shows the 'DNS Appliances' configuration page in Cisco Umbrella. The 'Appliance Configuration' tab is selected. Under 'Appliance Attributes', the 'DNS Appliance Type' is set to 'ISC Bind Authoritative Appliance'. The 'Enable Recursion' checkbox is checked.

DNS Appliances		
Appliance Configuration	DNS Views	Banner
<b>Appliance Attributes</b>		
DNS Appliance Type		
ISC Bind Authoritative Appliance		
<input checked="" type="checkbox"/> Enable Recursion		



## Forward Queries to Virtual Appliances

In the TCPWave application, under the DNS option templates, select **Only** under **Forward** field, and enter the **Forwarders**.



The screenshot shows a configuration form with two sections. The first section is labeled "Forward" and has a dropdown menu with "Only" selected. The second section is labeled "Forwarders" and contains the text "10.1.10.37;10.1.10.29".

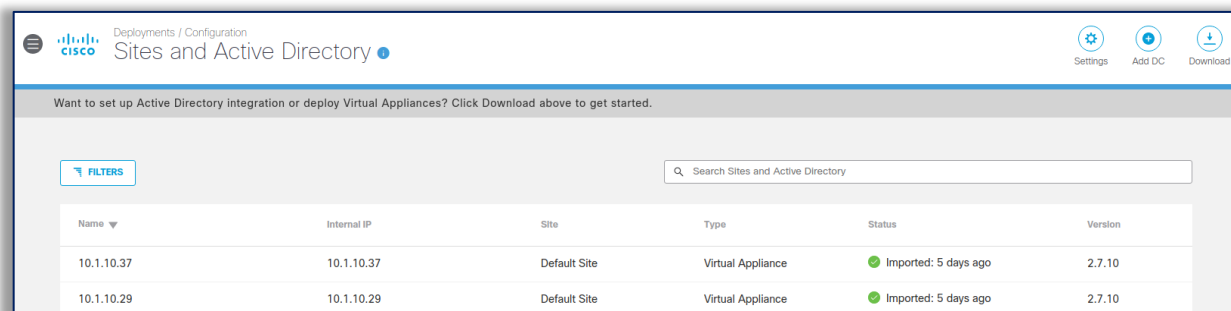
***Note:** The above configuration is only required when forwarding queries to the virtual appliance.*

*This configuration is not required when the DNS clients are pointed directly to the virtual appliances.*

*The Virtual appliance will forward the internal zone queries to the TCPWave which are configured in the "Domain Management".*

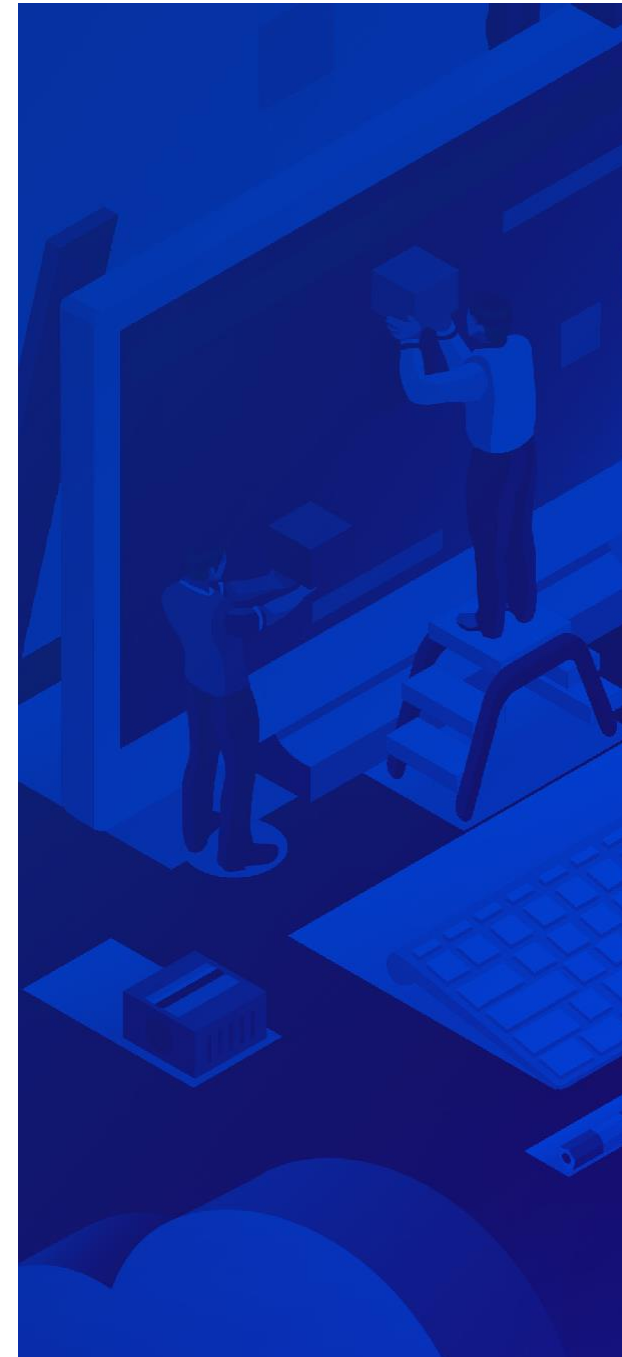
## Configure Virtual Appliances

The virtual appliances are configured on the Cisco Umbrella under "Sites and Active Directory".



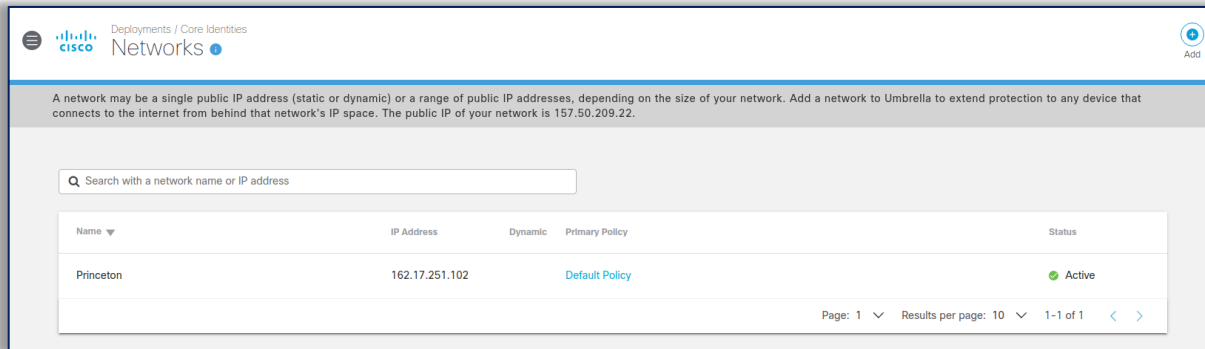
The screenshot shows the Cisco Umbrella interface for "Sites and Active Directory". It includes a search bar, a "FILTERS" button, and a table listing virtual appliances.

Name	Internal IP	Site	Type	Status	Version
10.1.10.37	10.1.10.37	Default Site	Virtual Appliance	Imported: 5 days ago	2.7.10
10.1.10.29	10.1.10.29	Default Site	Virtual Appliance	Imported: 5 days ago	2.7.10



# Network Deployment

The public IP addresses on each site configured on the Cisco Umbrella helps in providing the geo location-based response to the clients and apply policies for each location.

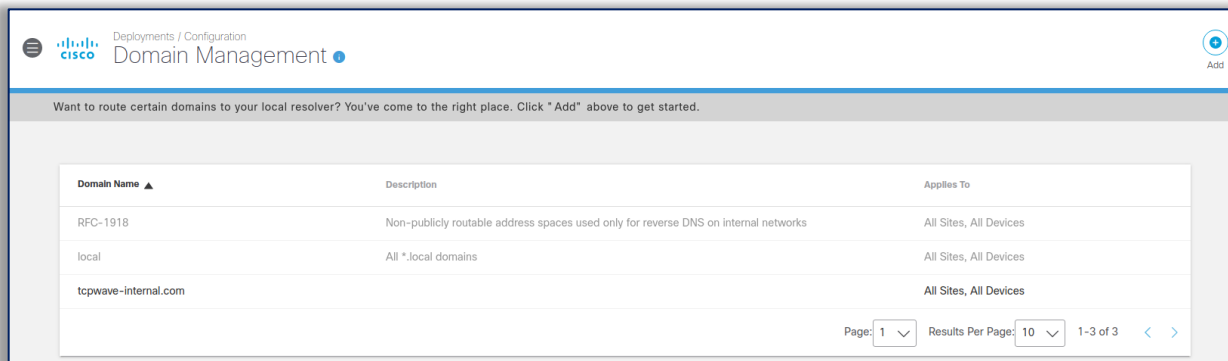


The screenshot shows the Cisco Umbrella 'Networks' page. At the top, it says 'Deployments / Core Identities Networks'. Below this is a search bar and a table of networks. The table has columns for Name, IP Address, Dynamic, Primary Policy, and Status. One network is listed: Princeton, with IP Address 162.17.251.102, Dynamic status, Primary Policy of Default Policy, and Status of Active. At the bottom, there are pagination controls: Page: 1, Results per page: 10, 1-1 of 1.

Name	IP Address	Dynamic	Primary Policy	Status
Princeton	162.17.251.102		Default Policy	Active

# Domain Management

The internal zones configured in the TCPWave appliances are configured on this “Domain Management” which will be sent to the virtual appliances.



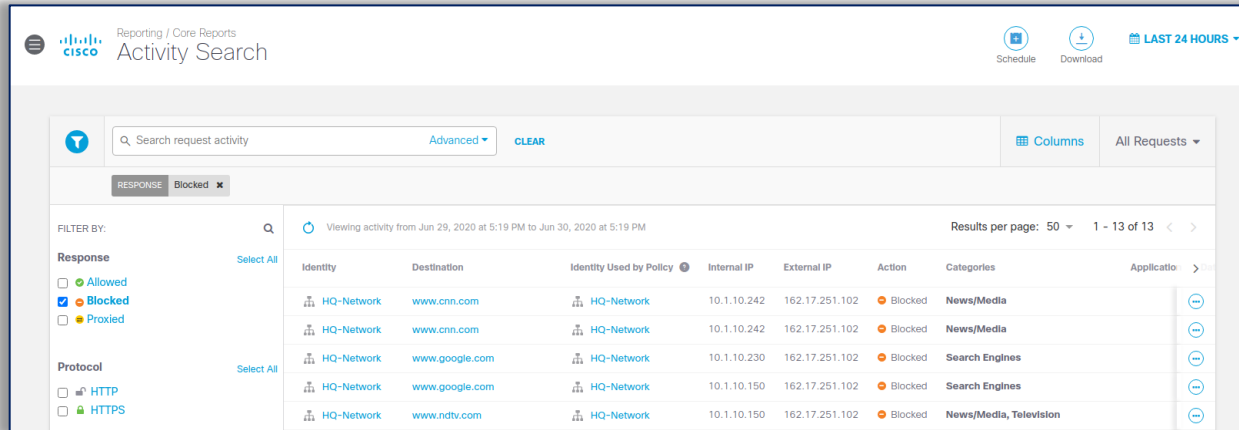
The screenshot shows the Cisco Umbrella 'Domain Management' page. At the top, it says 'Deployments / Configuration Domain Management'. Below this is a message: 'Want to route certain domains to your local resolver? You've come to the right place. Click "Add" above to get started.' Below the message is a table of domains. The table has columns for Domain Name, Description, and Applies To. Three domains are listed: RFC-1918, local, and tcpwave-internal.com. At the bottom, there are pagination controls: Page: 1, Results Per Page: 10, 1-3 of 3.

Domain Name	Description	Applies To
RFC-1918	Non-publicly routable address spaces used only for reverse DNS on internal networks	All Sites, All Devices
local	All *.local domains	All Sites, All Devices
tcpwave-internal.com		All Sites, All Devices



# Reports

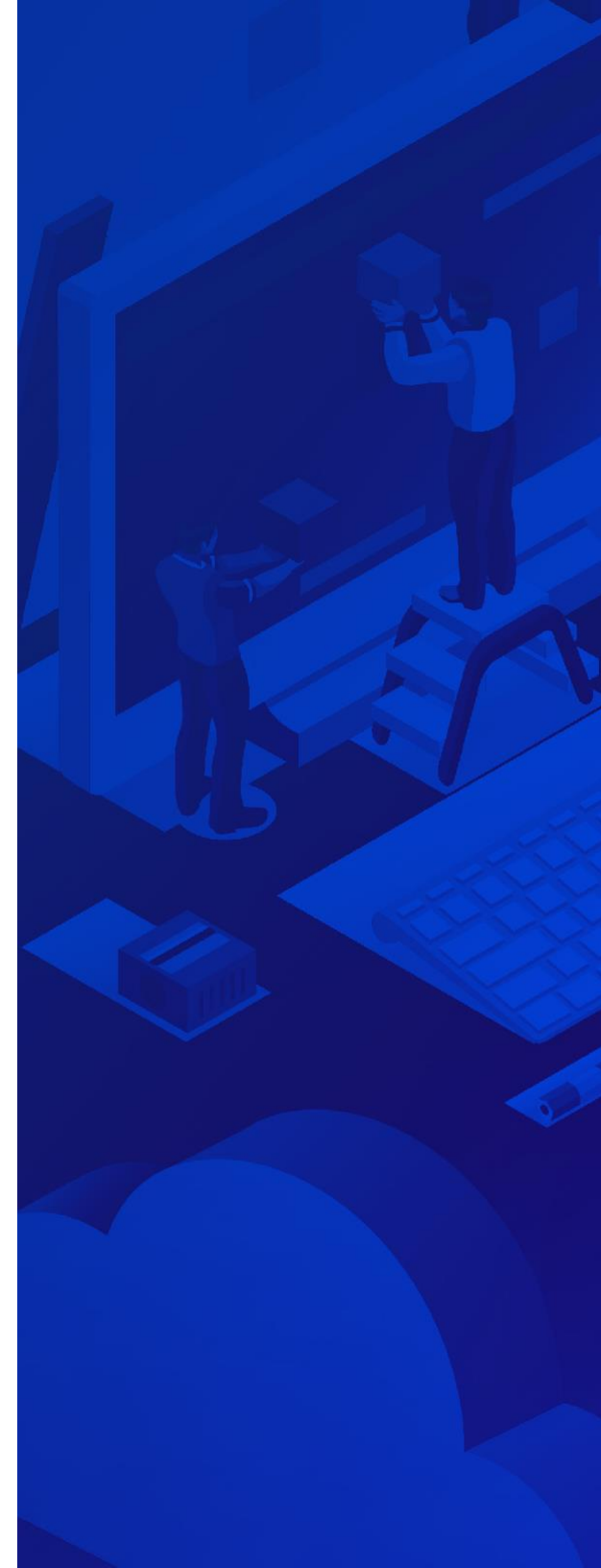
The below image displays the Cisco Umbrella reports showing the internal and external IP addresses when the DNS queries are pointed to the virtual appliances.



The screenshot shows the Cisco Umbrella Activity Search interface. The top navigation bar includes the Cisco logo, 'Reporting / Core Reports', and 'Activity Search'. There are buttons for 'Schedule' and 'Download', and a dropdown for 'LAST 24 HOURS'. A search bar contains 'Search request activity' with an 'Advanced' dropdown and a 'CLEAR' button. Below the search bar, there are tabs for 'RESPONSE' and 'Blocked x'. The main content area shows a table of activity with columns: Identity, Destination, Identity Used by Policy, Internal IP, External IP, Action, Categories, and Application. The table is filtered to show 'Blocked' responses from Jun 29, 2020 at 5:19 PM to Jun 30, 2020 at 5:19 PM. The results show five blocked requests from 'HQ-Network' to various destinations like www.cnn.com, www.google.com, and www.ndtv.com.

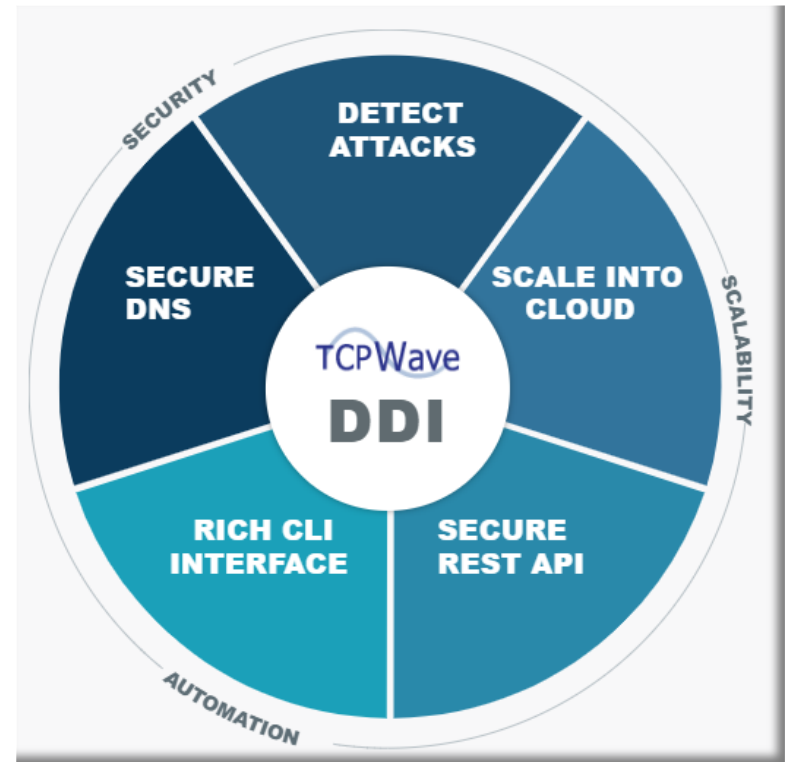
Identity	Destination	Identity Used by Policy	Internal IP	External IP	Action	Categories	Application
HQ-Network	www.cnn.com	HQ-Network	10.1.10.242	162.17.251.102	Blocked	News/Media	
HQ-Network	www.cnn.com	HQ-Network	10.1.10.242	162.17.251.102	Blocked	News/Media	
HQ-Network	www.google.com	HQ-Network	10.1.10.230	162.17.251.102	Blocked	Search Engines	
HQ-Network	www.google.com	HQ-Network	10.1.10.150	162.17.251.102	Blocked	Search Engines	
HQ-Network	www.ndtv.com	HQ-Network	10.1.10.150	162.17.251.102	Blocked	News/Media, Television	

The Internal IP addresses will be same as the TCPWave DNS appliance for all the queries if the DNS queries are first pointed to the TCPWave DNS and then the TCPWave is set to forward the queries to the virtual appliance.



TCPWave has the expertise and the experience necessary to ensure the seamless transition of your legacy network infrastructure into the modern world of DDI automation.

[Contact us](#) today to learn more about how TCPWave IPAM can move your network forward.



Want more technical detail? [Contact Us](#)

TCPWave, Inc.  
600 Alexander Road  
Princeton, NJ 08540  
USA

Email: [support@tcpwave.com](mailto:support@tcpwave.com)  
Phone: 888-831-8276  
**tcpwave.com**