Cisco vWAAS with Akamai Connect

This chapter provides an overview of Cisco vWAAS with Akamai Connect, and describes the hardware requirements for Cisco vWAAS with Akamai Connect, including how to upgrade Cisco vWAAS memory and disk for the Akamai cache engine.

This chapter contains the following sections:

About Cisco vWAAS with Akamai Connect

Akamai Connect is the HTTP/S object cache component added to Cisco WAAS, integrated into the existing WAAS software stack and leveraged via the HTTP Application Optimizer.

- Cisco WAAS with Akamai Connect helps to reduce latency for HTTP/S traffic for business and web applications, and can improve performance for many applications, including Point of Sale (POS), HD video, digital signage, and in-store order processing.
- Cisco WAAS with Akamai Connect provides significant and measurable WAN data offload, and is compatible with existing WAAS functions such as DRE (deduplication), LZ (compression), TFO (Transport Flow Optimization), and SSL acceleration (secure/encrypted) for first and second pass acceleration.
- For more information on Cisco WAAS with Akamai Connect, see the chapter “Configuring Cisco WAAS with Akamai Connect” in the *Cisco Wide Area Application Services Configuration Guide*.

Cisco vWAAS in Cisco WAAS with Akamai Connect is an integrated solution that combines WAN optimization and intelligent object caching to accelerate HTTP/S applications, video, and content.

Cisco vWAAS in Cisco WAAS with Akamai Connect helps reduce latency for HTTP/HTTPS traffic for business and web applications, and can improve performance for many applications, including Point of Sale (POS), HD video, digital signage, and in-store order processing. It provides significant and measurable WAN data offload, and is compatible with existing Cisco WAAS functions such as DRE, LZ, TFO, and SSL acceleration for first and second pass acceleration.

For more information, see the "Configuring Application Acceleration" chapter of the *Cisco Wide Area Application Services Configuration Guide*.

Supported Platforms for Cisco vWAAS with Akamai Connect

Table 10-1shows supported platforms for Cisco vWAAS with Akamai Connect, up to 6,000 connections

Table 10-1 Supported Cisco Devices for Akamai Caching, Up to 6,000 Connections

Cisco vWAAS	Cisco ISR-WAAS	Cisco WAVE	Cisco SRE-SM (for Cisco vWAAS in WAAS Version 6.2.x and earlier)
vWAAS-150 (for Cisco vWAAS in Cisco WAAS Version 6.1.1 and later)	• ISR-G2 • ISR-G3	• N/A	• N/A
vWAAS-200	• ISR-WAAS-750 (ISR-4451, ISR-4431, ISR-4351, ISR-4331, ISR-4321)	• WAVE-294	• SRE-SM-700
vWAAS-750	• ISR-WAAS-1300 (ISR-4451, ISR-4431)	• WAVE-594	• SRE-SM-900
vWAAS-1300	• ISR-WAAS-2500 (ISR-4451)	• WAVE-694	• SRE-SM-710
vWAAS-2500	• N/A	• N/A	• SRE-SM-910
vWAAS-6000	• N/A	• N/A	• N/A

Table 10-2 shows supported platforms for Cisco vWAAS with Akamai Connect, beyond 6,000 connections

Table 10-2 Supported Cisco vWAAS Models for Akamai Caching, Beyond 6,000 Connections

Cisco vWAAS Model	Total HTTP Object Cache Connections	Cache Engine Cache Disk	Additional Resource to be Added
vWAAS-12000	12,000	750 GB	6 GB RAM, 750 GB disk
vWAAS-50000	50,000	850 GB	850 GB disk

Note In Cisco vWAAS in WAAS Version 6.2.x, Cisco vWAAS with Akamai Connect beyond 6,000 connections is not supported for Cisco vWAAS on RHEL KVM or KVM on CentOS.

Cisco vWAAS with Akamai Connect License

Cisco iWAN with Akamai Connect is an advanced license that you can add to Cisco WAAS. The license for Cisco iWAN with Akamai Connect is aligned with the number of optimized connections in each supported Cisco WAAS model.

Table 10-3 lists the standalone licenses for Cisco iWAN with Akamai Connect and vWAAS. For information on all licenses for Cisco iWAN with Akamai Connect, see the *Cisco Intelligent WAN with Akamai Connect Data Sheet*.

Note The actual number of connections for each Cisco iWAN with Akamai Connect License shown in Table 10-3 is dependent on the hardware module on which WAAS is running.

Table 10-3 Licenses for Cisco iWAN with Akamai Connect with vWAAS

Cisco iWAN with Akamai Connect License	License Description	Supported Platforms (vWAAS platforms in bold font)
SL-1300-AKC	Akamai Connect license for up to 1300 Cisco WAAS connections	• ISR-2900 or ISR-3900 and one of the following: – **vWAAS-1300 or lower (UCS-E)** • ISR-4451, ISR-4431, ISR-4351, or ISR-4331: – **vWAAS-2500 or lower** • UCS server: – **vWAAS-1300 or lower** • WAVE-594
SL-2500-AKC	Akamai Connect license for up to 2500 Cisco WAAS connections	• ISR-2900 or ISR-3900 and one of the following: – **vWAAS-2500 or lower (UCS-E)** • ISR-4451: – **vWAAS-2500 or lower** • UCS server: – **vWAAS-2500 or lower** • WAVE-694
SL-6000-AKC	Akamai Connect license for up to 6000 Cisco WAAS connections	• ISR-2900/ISR-3900 and one of the following: – **vWAAS-6000 or lower (UCS-E)** • UCS server: – **vWAAS-6000 or lower** • WAVE-694

Cisco vWAAS with Akamai Connect Hardware Requirements

Table 10-4 shows the hardware requirements for Cisco UCS E-Series and Cisco ISR-WAAS for Cisco vWAAS with Akamai Connect.

Note For information on hardware requirements for Cisco vWAAS with Akamai Connect on Hyper-V, see Configuring GPT Disk Format for Cisco vWAAS-50000 on Microsoft Hyper-V with Akamai Connect in the chapter "Cisco vWAAS on Microsoft Hyper-V".

Table 10-4 Hardware Requirements for Cisco vWAAS with Akamai Connect

Cisco vWAAS or Cisco WAAS Model	Memory Required for Cisco vWAAS with Akamai Connect	Disk Required for Cisco vWAAS with Akamai Connect
vWAAS-150	4 GB	160 GB
vWAAS-200	4 GB	260 GB
vWAAS-750	4 GB	500 GB
vWAAS-1300	6 GB	600 GB
vWAAS-2500	8 GB	750 GB
vWAAS-6000	11 GB	900 GB
vWAAS-12000	18 GB	1500 GB
vWAAS-50000	48 GB	2350 GB
ISR-WAAS-200	2 GB	170 GB
ISR-WAAS-750	4 GB	170 GB
ISR-WAAS-1300	6 GB	170 GB
ISR-WAAS-2500	8 GB	360 GB

Note Table 10-7 shows the Cisco WAAS mid to high end platform cache engine memory requirements. Table 10-8 shows the Cisco WAAS mid to high end platform cache engine cache disk requirements..

Upgrading Cisco vWAAS Memory and Disk for Akamai Connect

This section contains the following topics:

Upgrading Memory and Disk for Cisco vWAAS in Cisco WAAS Version 5.4.1x Through 6.1.1x

If you are running Cisco vWAAS in Cisco WAAS Version 6.1.1x, the Akamai disk is added by default.

Upgrading Memory and Disk for vWAAS in WAAS Versions Earlier than Cisco WAAS Version 5.4.1

If you are running Cisco vWAAS in a Cisco WAAS version earlier than Cisco WAAS Version 5.4.1, and are using a VMware ESXi version earlier than VMware ESXi Version 5.0, and want to upgrade to Cisco WAAS Version 5.4.1, 5.5.1, or 6.1.1, use the following update memory and disk procedure to use the Akamai Connect feature with Cisco vWAAS.

Note Before using this procedure, note the upgrade paths for Cisco WAAS Version 6.2.3, as shown in Table 10-5. For complete upgrade instructions, see the *Release Note for Cisco Wide Area Application Services*.

Table 10-5 Upgrade Paths for Cisco WAAS Version 6.2.3

Current Cisco WAAS Version	Cisco WAAS Central Manager Upgrade Path	Cisco WAAS Upgrade Path
5.5.3 and later	Upgrade directly to 6.2.3	Upgrade directly to 6.2.3
4.3.x through 5.5.1	1. Upgrade to 5.5.3, 5.5.5x (5.5.5, 5.5.5a), or 5.5.7 2. Upgrade to 6.2.3	1. Upgrade to 5.5.3 or 5.5.5x 2. Upgrade to 6.2.3

Step 1 Power off the Cisco vWAAS.

Step 2 Right-click the Cisco vWAAS and select **Editing Settings...** .

Step 3 Click **Add...** .

Step 4 In the **Add Hardware** dialog box, select **Hard Disk** and click **Next**.

Step 5 In the **Select a Disk** dialog box, select **Create a new virtual disk** and **Next**.

Step 6 In the **Create a Disk** dialog box:

- From the **Capacity** drop-down list, choose the size of the new disk.
- From the **Disk Provisioning** drop-down list, choose **Thick Provision Lazy Zeroed**.
- From the **Location** drop-down list, choose **Store with the virtual machine**.
- Click **Next**.

Step 7 In the **Advanced Options** dialog box:

- From the **Virtual Device Node** drop-down list, choose **SCSI (0:2)**.
- From the **Mode** drop-down list, choose **Persistent**.
- Click **Next**.

Step 8 In the **Ready to Complete** dialog box, confirm the following options:

- Hardware type
- Create disk
- Disk capacity
- Disk provisioning

- Datastore
- Virtual Device Node
- Disk mode

Step 9 Click **Finish**.

Step 10 The window displays the status message **New hard Disk (adding)**. Click **OK**.

Step 11 Wait until the **Recent Tasks** window displays the **Reconfigure Virtual machine** task as **Completed**. Power on.

Step 12 To verify the new disk, display the current hardware listing with **Virtual Machine Properties** > **Hardware**.

Upgrading Memory and Disk for Cisco vWAAS-12000 with VMware ESXi

Caution When the vWAAS-12000 is deployed, the RAM size is 12 GB and the **/local/local1** directory size is 15 GB. When you enable Akamai Connect for vWAAS, you need to increase the RAM to 18 GB. This procedure alters the calculation of the **local1** directory size for the vWAAS-12000 because the expected size is 27 GB. The mismatch between the existing size (15 GB) for the **local1** directory and the expected size (27 GB) triggers an alarm.

The mismatch between the RAM size and disk size may cause a serious problem during a kernel crash in the vWAAS-12000 because the **vmcore** file will then be larger than what can be stored in the **local1** directory.

To avoid the scenario described in the above Caution notice, and to safely upgrade vWAAS memory and disk for Akamai Connect for the vWAAS-12000, follow these steps:

Step 1 Power off the Cisco vWAAS VM.

Step 2 Add an additional disk of the required size for your system.

Step 3 Increase the size of the RAM.

Note To run Akamai Connect on Cisco vWAAS-12000, increase the size of the RAM by at least 6 GB.

Step 4 Power on the Cisco vWAAS VM.

Step 5 Check the alarms.

The **filesystem_size_mism** alarm is raised:

```
Critical Alarms
-----------------------

Alarm ID                 Module/Submodule          Instance
-----------------------  ------------------        ---------------

1 filesystem_size_mism   disk                      Filesystem size
```

Step 6 Run the **disk delete-data-partitions** command.

Note The **disk delete-data-partitions** command deletes the cache files, including DRE cache files.

Step 7 Reload the device.

- You must reload the device after using the **disk delete-data-partitions** command.

  The reload process automatically re-creates data partitions, and initializes the caches. This process may take several minutes.

  DRE optimization will not start until the DRE cache has finished initializing.

Upgrading Memory and Disk for Cisco vWAAS-12000 with Microsoft Hyper-V

Before You Begin

When the Cisco vWAAS-12000 is deployed, the RAM size is 12 GB and the **/local/local1** directory size is 15 GB. When you enable Akamai Connect for vWAAS, increase the RAM to 18 GB.

Caution This procedure alters the calculation of the **local1** directory size for the vWAAS-12000 because the expected size is 27 GB. The mismatch between the existing size (15 GB) for the **local1** directory and the expected size (27 GB) triggers an alarm.

The mismatch between RAM size and disk size may cause a serious problem during a kernel crash in the vWAAS-12000, because the **vmcore** file will then be larger than what could be stored in the **local1** directory.

To avoid the scenario described in the above Caution notice, and to safely upgrade Cisco vWAAS memory and disk for Akamai Connect for the Cisco vWAAS-12000, follow these steps:

Step 1 Power off the vWAAS VM.

Step 2 Add an additional disk of the required size for your system.

Step 3 Increase the size of the RAM.

Note To run Akamai Connect on vWAAS-12000, increase the size of the RAM by at least 6 GB.

Step 4 Increase the size of the **kdump** file from 12.2 GB to 19 GB.

To enable the kernel crash dump mechanism, use the **kernel kdump enable** global configuration command. To display kernel crash dump information for the device, use the **show kdump** EXEC command.

Step 5 Power on the vWAAS VM.

Step 6 Check the alarms.

The **filesystem_size_mism** alarm is raised:

```
Critical Alarms
-----------------------

Alarm ID                  Module/Submodule          Instance
------------------------  ------------------        ---------------

1 filesystem_size_mism    disk                      Filesystem size
```

Step 7 Run the **disk delete-data-partitions** command.

Note The **disk delete-data-partitions** command deletes the cache files, including the DRE cache files.

Step 8 Reload the device.

- You must reload the device after using the **disk delete-data-partitions** command.

  The reload process automatically re-creates data partitions, and initializes the caches. This process may take several minutes.

  DRE optimization will not start until the DRE cache has finished initializing.

Cisco vWAAS-150 with Akamai Connect

In Cisco vWAAS in WAAS Version 6.1.1 and later, Cisco vWAAS-150 on Cisco ISR-WAAS is supported for Akamai Connect. In vWAAS in Cisco WAAS Version 6.2.1 and later, vWAAS-150 is also supported for RHEL KVM and Microsoft Hyper-V.

Note Downgrading Cisco vWAAS-150 for RHEL KVM or for Microsoft Hyper-v to a version earlier than vWAAS in Cisco WAAS Version 6.2.1 is not supported.

Table 10-6 shows the specifications for Cisco vWAAS-150.

Table 10-6 Cisco vWAAS-150 Profile

Feature	Description
Memory with Akamai Connect	4 GB
Disk with Akamai Connect	160 GB
vCPU	1 vCPU
Module	Cisco UCS E-Series NCE blade (PID: UCS-EN120E-208-M2/K9), supported on Cisco ISR-G2 platform
NIM module	Cisco UCS E-Series NCE NIM blade (PID: UCS-EN140N-M2/K9), supported on Cisco ISR-G3 platform

Cisco WAAS Central Manager and Cisco vWAAS-150

In the Cisco vWAAS-150 model, the Cisco WAAS Central Manager must be Cisco WAAS Version 6.2.1 or later, but the mixed versions of device models (Cisco WAAS Version 6.2.1 and earlier) are also supported. The Cisco WAAS Central Manager must be a version that is equal to or later than the associated devices.

Note Cisco vWAAS-150 is deployed only in Cisco WAAS Version 6.1.1. Therefore, you cannot upgrade or downgrade Cisco vWAAS-150 from Cisco WAAS Version 6.1.1.

Akamai Connect Cache Engine on Cisco Mid-End and High-End Platforms

In Cisco WAAS Version 6.2.1 and later, the Akamai Connect Cache Engine is supported for scaling beyond 6,000 Cisco vWAAS connections on the following platforms:

- Cisco WAVE-7541, Cisco WAVE-7571, and Cisco WAVE-8541
- Cisco vWAAS-12000 and Cisco vWAAS-50000

Scaling for these platforms is based on memory availability, scale performance, and the particular dynamic cache size management feature. Table 10-7 shows the connections, total memory, and cache engine memory requirements for each of these platforms. Table 10-8 shows the connections, number of disks, and cache engine disks for each of these platforms.

The Akamai Connect cache engine connection-handling capacity is determined by the upper limit of memory that is given to the Akamai Connect cache engine at startup. The Akamai Connect cache engine allocates memory, as needed, up to the upper limit; on approaching that limit, it pushes back new connections. In case of overload, the connection is optimized by HTTP-AO, without caching benefit.

For Cisco vWAAS-12000 and Cisco vWAAS-50000, HTTP object cache will scale up to the platform TFO limit. To achieve this, augment the platform resources (CPU, RAM, and disk) during provisioning.

- For vWAAS-12000, allocate at least 6 GB of additional RAM.
- For vWAAS-12000 and vWAAS-50000, allocate cache engine cache disk resources. Cache disk requirements are shown in Table 10-8.

Table 10-7 Cisco WAAS Mid to High End Platform Cache Engine Memory Requirements

Cisco WAAS Platform	HTTP Object Cache Connections	CPU	Total Memory	Memory Required for Cache Engine
vWAAS-12000	12 K	4	18 GB	4308 M
vWAAS-50000	50 K	8	48 GB	14136 M
WAVE-7541	18 K	2	24 GB	5802 M
WAVE-7571	60 K/ 50 K/ 40 K	2	48 GB	15360 M or 14125 M or 11565 M
WAVE-8541	150 K/ 125 K/1 00 K	2	96 GB	38400 M or 32000 M or 25600 M

Table 10-8 Cisco WAAS Mid-End to High-End Platform Cache Engine Cache Disk Requirements

Cisco WAAS Platform	HTTP Object Cache Connections	CPU	Disk and Cache Engine Cache Disk	Cache Engine Cache Disk
vWAAS-12000	12 K	4	750 GB	750 GB
vWAAS-50000	50 K	8	1500 GB	850 GB
WAVE-7541	18 K	2	2200 GB	708 GB
WAVE-7571	60 K/ 50 K/ 40 K	2	3100 GB	839 GB
WAVE-8541	150 K/ 125 K/100 K	2	4.1 TB	675 GB