Cisco Intelligent WAN with Akamai Connect

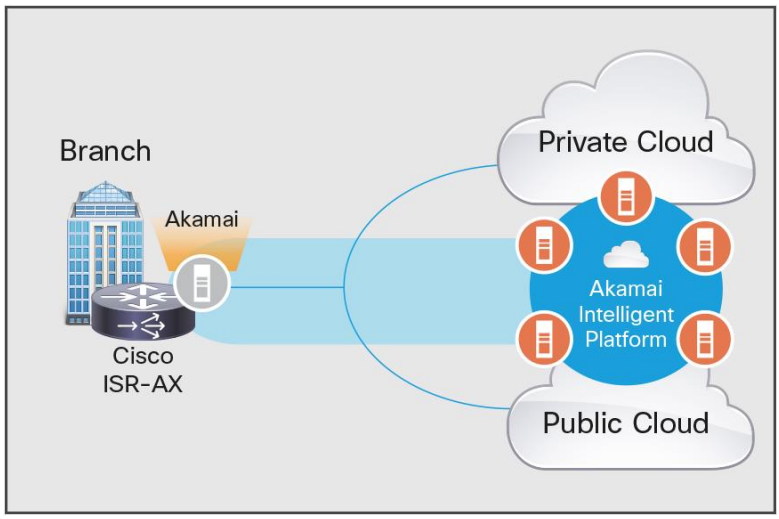
Deliver consistent, LAN-like user experiences using application acceleration and WAN optimization while lowering bandwidth costs. Users get world-class experiences regardless of what device, connectivity, or cloud service they use.

Product Overview

Cisco® Intelligent WAN with Akamai Connect is a suite of integrated WAN optimization, application acceleration, and intelligent caching features in Cisco Integrated Services Routers running Application Experience (ISR-AX) services. Traffic management features from Cisco and intelligent HTTP caching from Akamai are fully integrated to work together to allow you to streamline your WAN bandwidth usage and speed up user application response times over the WAN as you add new rich apps and user connections.

Users can access bandwidth-intensive applications instantly, over any network, regardless of where the application is hosted − data center, private cloud, public cloud, or the Internet. The solution extends the well-known Akamai Intelligent Platform with HTTP caching across the last mile into the branch office (Figure 1), turbo charging the application optimization features of the Cisco Intelligent WAN (IWAN). Akamai Connect caching integrates with Cisco IWAN features such as Application Visibility and Control (AVC), Cisco Performance Routing (PfR), and Cisco Wide Area Application Services (WAAS). It is available across the ISR-AX portfolio and Cisco Wide Area Virtualization Engine (WAVE) appliances, allowing you to deploy full-service branch-office operations.

Figure 1. Extending Akamai's HTTP Caching Intelligence into the Branch Office



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IT and Business Challenges

Business leaders across industries are innovating in branch offices to engage customers and improve employee productivity to accelerate revenue. Retailers are using omnichannel to expand the touch points to engage and convert customers, for example. Schools are embracing technology-based curriculum, and clinics are obtaining medical images for patient care improvements. Enterprises are delivering online sales or new-hire training.

Most of these new ideas depend on performance-sensitive and data-heavy web and media applications. So IT departments are often challenged to keep up with growing network demands without having to constantly make expensive network and bandwidth upgrades.

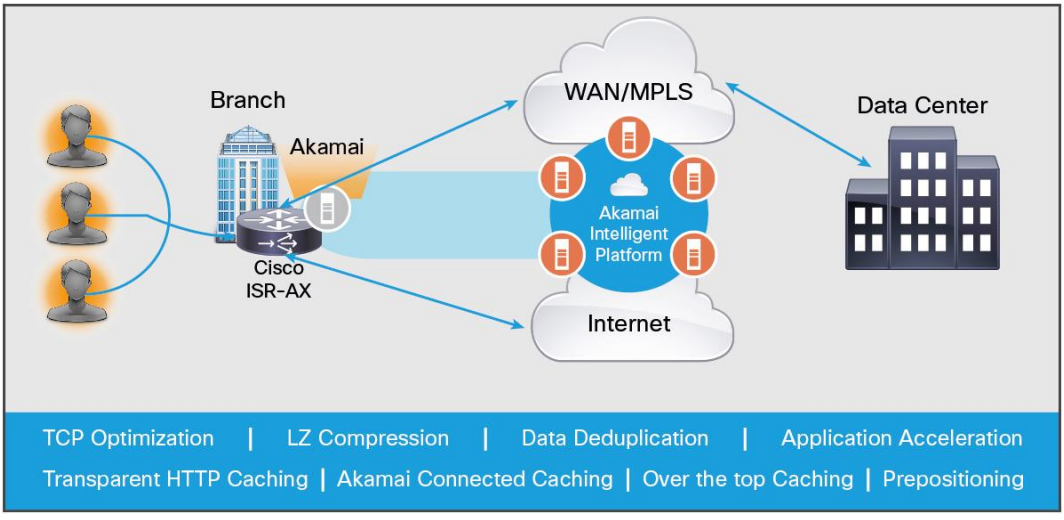
And if you're like most organizations, you might be centralizing applications in the public or private cloud to promote efficiencies. But this shift is resulting in new traffic patterns that are increasing the traffic burden on the WAN. Furthermore, network inefficiencies of backhauled traffic, the proliferation of mobile devices, and the move to cloud applications add more to the WAN load.

With application performance proven to directly affect employee productivity and customer acquisition and retention, business leaders and IT departments are working together to find ways to offer smooth experiences by addressing infrastructure constraints without additional WAN budgets. This is where Cisco IWAN with Akamai Connect can help.

Key Features and Benefits

Cisco IWAN with Akamai Connect helps ensure fast, quality experiences for employees and customers while significantly offloading traffic from the WAN for congestion reduction and bandwidth savings (Figure 2).

Figure 2. Cisco IWAN with Akamai Connect



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In addition to the features of IWAN such as transport independence with Dynamic Multipoint VPN (DMVPN), intelligent path control with PfR, secure connectivity, and AVC, Akamai Connect offers the following features:

- **WAN optimization and application acceleration for maximizing bandwidth.** With Akamai Connect integrated into Cisco WAAS, the solution includes all the WAN optimization components that help maximize traffic on WAN links without expensive upgrades:
  - **Traffic optimization.** Cisco WAAS employs transport flow optimization (TFO) to improve application packet flow under unfavorable WAN conditions such as packet loss and small initial windows while helping ensure packet fairness. Data redundancy elimination (DRE) compresses traffic by replacing previously seen TCP traffic and redundant traffic with very small signatures. Adaptive persistent session-based compression further compresses traffic on the wire.
  - **Application acceleration.** Cisco WAAS provides application-specific acceleration features for both encrypted and unencrypted applications such as Common Internet File System/Server Message Block Protocol (CIFS/SMB), Messaging Application Programming Interface/Encrypted Messaging Application Programming Interface (MAPI/eMAPI), Citrix ICA, HTTP and Secure HTTP (HTTPS), SharePoint, and others.
- **Different levels of HTTP object caching.** These options enable significant offload of WAN traffic and superior application performance at the branch office:
  - **Transparent Cache.** Akamai's high-performance HTTP object cache provides the ability to locally cache HTTP-based content for LAN-like performance, regardless of whether the web application was served from the private corporate cloud or the public Internet. This content includes on-demand and live HTTP video streams to deliver fast, high-quality, high-definition video experiences in the branch, all while offloading the enterprise network. Akamai Connect supports the latest generation of streaming protocols such as Apple HTTP Live Streaming (HLS), Adobe HTTP Dynamic Streaming (HDS), and Microsoft HTTP Smooth Streaming (HSS). Furthermore, Akamai's HTTP object cache supports the caching of Apple software updates such as iOS and OS X, further offloading the enterprise network.

    The Transparent Cache comes with three caching profiles: Basic, Standard, and Advanced. These profiles let you cater to any level of caching desired. The Basic cache profile is the lowest level of caching, where it strictly complies with the client caching directives in the HTTP header. The Standard cache profile, which is enabled by default, expands the breadth of caching objects by including those objects that do not have caching directives. For example, with Standard caching, the object will be cached for 10 percent of the current age of the response and then updated. The Advanced cache profile further extends the duration for which the objects without specific age limits are cached, thus allowing an aggressive amount of caching in appropriate situations.
  - **Akamai Connected Cache.** Akamai's proprietary caching rules in connection with the edge servers of the Akamai Intelligent Platform lets you cache and deliver content inside the branch office that might otherwise be deemed noncacheable. This content could be an enterprise's own web content or any content that is delivered by the Akamai Intelligent Platform, which is up to 30 percent of all web traffic.
  - **Dynamic URL HTTP Cache.** This high-performance object-level cache from Akamai gives the ability to cache HTTP content served from dynamically generated URLs and content marked as noncacheable such as YouTube videos. This type of content is often used today for product demonstrations or advertisements displayed in stores on digital signage, employee training, and other dynamic uses.

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- **Content Pre-Positioning.** You can define policies to proactively fetch content on a specific schedule. By sending the HTTP web cache during nonpeak times, you can improve application performance and maximize network offload for enhanced user experiences when the network is busiest. Examples include training videos, product demonstrations, online product catalogs, and software updates.
- **Single and centralized management.** Cisco WAAS Central Manager provides a single, central management center for your WAN optimization and HTTP caching features. In addition to command-line tools, Cisco WAAS Central Manager provides an intuitive, web-based management console for administering the features, monitoring their performance, and reporting on bandwidth savings. Detailed analytics on benefits, both specifically from HTTP caching and from aggregate benefits, let you gain visibility into usage patterns and fine-tune your system for maximum benefit.

Table 1 describes how Cisco IWAN with Akamai Connect can help you meet specific business goals in your branch offices.

Table 1. Cisco IWAN with Akamai Connect Addresses Key Business Needs

Business Need	Cisco IWAN with Akamai Connect Feature/Capability	Description
Decrease IT costs and protect WAN bandwidth investments	Optimizes traffic flows and caches content locally to relieve WAN loads.	Dramatically offloads traffic from the WAN, with typical results of 50- to 60-percent savings and often approaching 90 percent. By conserving and optimizing existing bandwidth, you can adopt new business applications and serve more users without expensive network upgrades.
Grow branch-office revenue	Increases web application delivery speed by about 20 times and results in about a 95-percent reduction in webpage load times.	Enables agile IT delivery of new and improved in-branch office connected digital experiences. This delivery allows you to expand into new growth opportunities such as interactive digital displays, omnichannel, guest Wi-Fi, on-demand tutorials, rich online curriculum, and more.
Increase user satisfaction and productivity	Users get LAN-like performance on any device for the widest range of content.	Deploy creative rich-media applications inside the branch for both customers and employees without worrying about WAN congestion and degraded experiences.
Simplify IT with an all-in-one solution	IT can remotely manage all the branch services required to deliver an uncompromised experience.	Solution delivers application visibility, WAN path selection, application acceleration and optimization, and more on a single platform.

Platform Support

Cisco IWAN with Akamai Connect is an advanced license that can be added to Cisco WAAS. A corresponding Cisco IWAN with Akamai Connect license is available for all supported WAAS models. The integrated solution is supported on the WAAS platforms listed in Table 2.

Table 2. Supported WAAS Platforms for IWAN with Akamai Connect

Cisco WAAS Deployment	Cisco Platform	WAAS Details
Module on router	ISR2911-AX ISR2921-AX ISR2951-AX ISR3925-AX ISR3945-AX	Cisco WAAS on Services-Ready Engine Module Cisco Virtual WAAS (vWAAS) on Cisco Unified Computing System™ (Cisco UCS®) Module (vWAAS6K or below)
Integrated WAAS	ISR4451-X-AX ISR4431-AX ISR4351-AX ISR4331-AX ISR4321-AX	Cisco WAAS running natively in ISR (ISR-WAAS200, ISR-WAAS750, ISR-WAAS1300, or ISR-WAAS2500)

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Cisco WAAS Deployment	Cisco Platform	WAAS Details
WAAS appliance	WAVE-294-K9 WAVE-594-K9 WAVE-694-K9	Cisco WAAS on WAVE appliances
On Cisco UCS Server	-	Cisco Virtual WAAS running on Cisco UCS® Server (vWAAS6K or below)

Licensing

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

Table 3 lists the standalone licenses for Cisco IWAN with Akamai Connect.

Table 3. Standalone Licenses for Cisco IWAN with Akamai Connect

Cisco IWAN with Akamai Connect License	Description	Platforms
SL-200-AKC **SL-200-AKC=**	Akamai Connect License for up to 200 WAAS connections	WAVE294 ISR4321
SL-750-AKC **SL-750-AKC=**	Akamai Connect License for up to 750 WAAS connections	WAVE294 WAVE594 ISR4331
SL-1300-AKC **SL-1300-AKC=**	Akamai Connect License for up to 1300 WAAS connections	ISR2900/ISR3900*: WAAS (SRE), or One of vWAAS1300 or below (UCS-E) ISR4451, ISR4431, ISR4351, ISR4331 One of ISR-WAAS2500 or below WAVE594 UCS Server: One of vWAAS1300 or below
SL-2500-AKC **SL-2500-AKC=**	Akamai Connect License for up to 2500 WAAS connections	ISR2900/ISR3900*: WAAS (SRE), or One of vWAAS2500 or below (UCS-E) ISR4451: One of ISR-WAAS2500 or below WAVE694 UCS Server: One of vWAAS2500 or below
SL-6K-AKC **SL-6K-AKC=**	Akamai Connect License for up to 6000 WAAS connections	ISR2900/ISR3900*: One of vWAAS6000 or below (UCS-E) WAVE694 UCS Server: One of vWAAS6000 or below

* Actual number of WAAS connections depends on the hardware module on which WAAS is running.

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System Requirements

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

Table 4. Cisco UCS E-Series and ISR-WAAS Hardware Requirements for vWAAS with Akamai Connect

Cisco WAAS Model	Memory Required for vWAAS with Akamai Connect	Disk Required for WAAS with Akamai Connect
vWAAS200	3 GB	260 GB
vWAAS750	4 GB	500 GB
vWAAS1300	6 GB	600 GB
vWAAS2500	8 GB	750 GB
vWAAS6000	11 GB	900 GB
ISR-WAAS200	2 GB	170 GB
ISR-WAAS750	4 GB	170 GB
ISR-WAAS1300	6 GB	170 GB
ISR-WAAS2500	8 GB	360 GB

Note 1: To run ISR-WAAS natively on ISR 4451-X, memory upgrade to 16 GB, flash-memory upgrade to 32 GB, and up to two 200-GB SSD storage drives are needed.

Note 2: To run vWAAS on the Cisco UCS E-Series Server, in addition to the memory and disk requirements outlined above, please ensure that the system has the available CPU cores that can be assigned to the vWAAS instance. This table does not include the minimum memory requirement of 2 GB for VMware and memory overhead for the vCPU plus memory commitment, which must also be factored in when planning an installation. In general, the Cisco UCS E-Series Server must have more than the default 8-GB memory to install and run the vWAAS models.

Ordering Information

For ordering information, please contact your local Cisco account representative.

Cisco Service and Support

Support for Cisco IWAN with Akamai Connect is conveniently included in support for Cisco WAAS. Cisco offers a wide range of services programs to accelerate customer success. These innovative services programs are delivered through a unique combination of people, processes, tools, and partners, resulting in high levels of customer satisfaction. Cisco Services offerings help you protect your network investment, optimize network operations, and prepare your network for new applications to extend network intelligence and the power of your business. For more information about Cisco Services, refer to Cisco Technical Support Services and Cisco Advanced Services.

Learn More

For more information about Cisco IWAN with Akamai Connect, visit http://www.cisco.com/go/akamai or contact your local Cisco account representative.

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