Cisco Wide Area Application Services Software Release 5.1

Product Overview

Cisco® Wide Area Application Services (WAAS) provides the industry's most scalable, highest-performance WAN optimization solution. Cisco WAAS can improve the end-user experience and reduce bandwidth for applications including Microsoft Exchange, Citrix XenApp and XenDesktop, SAP, IBM Lotus Notes, NetApp SnapMirror, HTTP and HTTPS, cloud, and file applications.

Cisco WAAS enables organizations to implement important business initiatives including:

- Secure, scalable enterprisewide bring-your-own-device (BYOD) solutions
- High-performance virtual desktop infrastructure (VDI) and Cisco Virtual Experience Infrastructure (Cisco VXI™)
- Live and on-demand media applications such as webcasting, e-learning, and digital signage
- High-performance public and private cloud services and software-as-a-service (SaaS) applications
- Improved application performance and end-user experience for applications including web, email, VDI, file, and cloud applications
- Reduced WAN bandwidth requirements and deferral of expensive bandwidth upgrades
- Reduced branch footprint through server and service consolidation
- Data center consolidation, virtualization, and automation

Cisco WAAS Leadership

Cisco is the leader in WAN optimization, as confirmed by IT professionals from both Nemertes Research and IT Brand Pulse for leadership in overall market, price, performance, reliability, service and support, and innovation. In addition, Cisco AppNav for WAAS won the 2012 Best of Interop award (Figure 1).

Figure 1. Cisco AppNav for WAAS Won the 2012 Best of Interop Award

Main Benefits of Cisco WAAS Software Release 5.1

Cisco WAAS Software Release 5.1 enables virtualization of optimization resources across the enterprise. Cisco WAAS virtualization is scalable, secure, and robust, enabling migration to cloud-based services. With Cisco WAAS 5.1, the agile and optimized WAN has cloud connectivity and end-to-end, standards-based application security.

Benefits delivered by Cisco WAAS 5.1 include:

- Additional Citrix XenDesktop feature support, including support for Citrix Multi-Stream Independent Computing Architecture (MSI) with quality of service (QoS), enhanced compression, and performance features.
- Enhanced Cisco WAAS optimization for Microsoft SharePoint.
- Cisco Virtual WAAS (vWAAS) qualification on Cisco UCS® E-Series Servers for Cisco Integrated Services Routers Generation 2 (ISR G2), for a smaller footprint and lower total cost of ownership (TCO).
- Enhanced autodeploy feature, simplifying deployment of Cisco WAAS.

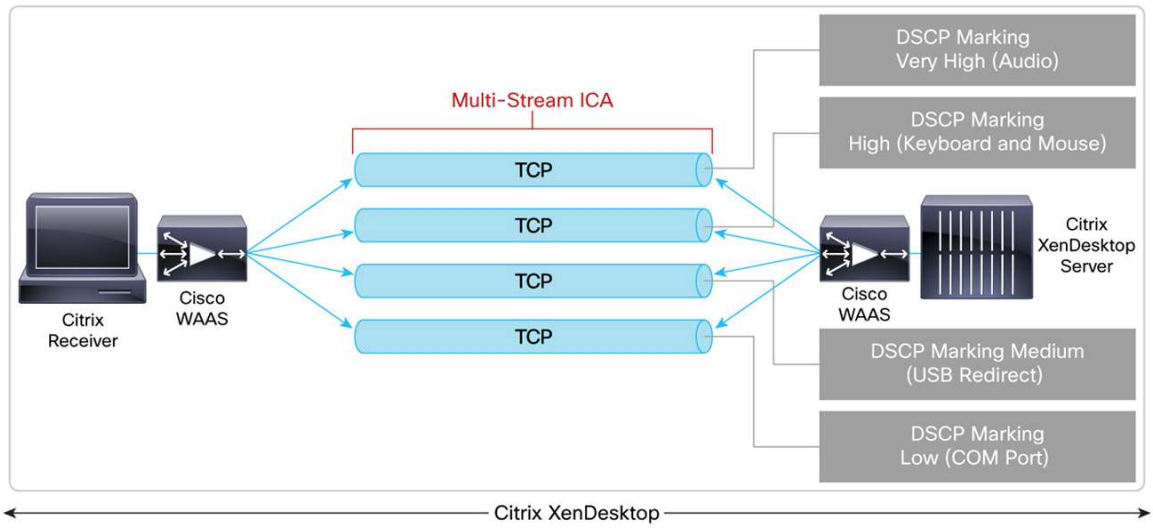
Main Features

Enhanced Citrix XenDesktop and XenApp Feature Support

- Citrix Multi-Stream ICA support: With Citrix MSI, Citrix XenDesktop 5.5 adds the option to deliver ICA traffic over multiple streams, four of which are TCP streams with a fifth User Datagram Protocol (UDP) stream used for audio. The separation of ICA traffic into multiple streams lets administrators apply QoS priorities to individual components of an ICA session. Administrators can apply priorities to session features based on business needs, such as the need to help ensure that audio quality remains high in voice-over-IP (VoIP) applications even during network congestion.

  Cisco WAAS 5.1 can optimize Citrix MSI. Cisco WAAS parses the ICA and Citrix Common Gateway Protocol (CGP) traffic and learns the arbitrary TCP ports through the MSI negotiation. The Cisco WAAS ICA process then establishes dynamic Cisco WAAS policy engine rules to allow the additional ICA/CGP connections to be intercepted and passed to the Cisco WAAS ICA process for optimization (Figure 2).

Figure 2. Citrix Multi-Stream ICA



- QoS support for MSI traffic and single-stream ICA (non-MSI) traffic: Cisco WAAS can be enabled to implement differentiated services code-point (DSCP) tagging of both MSI and single-stream (non-MSI) traffic and CGP traffic. After it is enabled, Cisco WAAS interprets the MSI stream type for the TCP connection and enables the appropriate DSCP value. The user will be able to enable or disable tagging MSI or non-MSI traffic and define different values for the MSI and non-MSI traffic.

With MSI, each ICA virtual channel is associated with a class of service (CoS) in delivering a user session. The four classes of service, each of which maps to a TCP stream, are:

  - Very high priority: Used for real-time channels such as audio channels
  - High priority: Used for interactive channels such as graphics, keyboard, and mouse channels
  - Medium priority: Used for bulk virtual channels such as drive mapping, scanners, and TWAIN channels
  - Low priority: Used for background virtual channels such as printing channels

- Enhanced ICA/CGP optimization: Cisco WAAS ICA has new enhancements to help in compression performance to prevent data redundancy elimination (DRE) overhead and CPU consumption. ICA has multiple protocol headers because various protocols are layered on top of each other in a message. Cisco WAAS 5.1 improves the handling of these cases with better DRE compression and is enhanced to explicitly manage DRE to push the current data it has and send it on its way to further reduce latency. Cisco WAAS 5.1 also sends flushes when it sees CGP ACK messages to further reduce the CGP retransmit queue length.
- Enhanced Microsoft SharePoint: Cisco WAAS optimization for Microsoft SharePoint provides specific optimization benefits for Microsoft Office documents hosted on a Microsoft SharePoint 2010 Server. The Microsoft SharePoint feature provides optimization by prefetching objects for Microsoft Word and Excel and storing them in the Cisco WAAS metadata cache. This optimization saves round-trip time (RTT) for each successful fetch, reducing latency from the client's point of view and improving the overall user experience.
- Cisco vWAAS qualification for Cisco UCS E-Series: Cisco vWAAS 5.1 runs on both the single- and double-wide slot models of the Cisco UCS E-Series Servers on the Cisco ISR G2 platform and uses the VMware 5.0 hypervisor.

  As shown in the last two columns of Table 1, a significant amount of capacity can be provided to other applications even after supporting a Cisco WAAS accelerator.

Table 1. Cisco vWAAS Connections and Resources

Model	Maximum Connections	RAM (GB)	Disk (GB)	CPUs	Target WAN Throughput	Remaining Single Wide	Remaining Double Wide
vWAAS-200	200	2	160	1	10 Mbps	Cores: 3 Memory: 14 GB Disk: 840 GB	Cores: 5 Memory: 46 GB Disk: 1.84 TB
vWAAS-750	750	4	250	2	50 Mbps	Cores: 2 Memory: 14 GB Disk: 750 GB	Cores: 4 Memory: 44 GB Disk: 1.75 TB
vWAAS-6000	6000	8	500	4	200 Mbps	Cores: 0 Memory: 8 GB Disk: 500 GB	Cores: 2 Memory: 40 Disk: 1.5 TB

- Enhanced autodeploy: Cisco WAAS 5.1 includes enhancements to the autodeploy feature. With the new capabilities added in this release, the process of deploying Cisco WAAS is even simpler than before, reducing the operating expenses (OpEx) associated with deploying the WAN optimization infrastructure.

Market Trends Addressed by Cisco WAAS 5.1

Cisco WAAS 5.1 addresses the following market trends:

- Desktop and application virtualization: Enterprises are increasingly adopting desktop and application virtualization solutions to achieve various objectives: compliance, end-of-life extension, operation efficiency, savings in capital expenditures (CapEx) and OpEx, network agility, etc. VDI places an increasing burden on the WAN because application performance, security, and manageability expectations need to be maintained as work shifts to a VDI environment, increasing the pressure on IT to deploy an agile and optimized WAN.
- Public and virtual private clouds: Enterprises are looking to the cloud to reduce IT costs and accelerate delivery of new applications to end users. Organizations such as the U.S. government, as well as many private companies, have mandated that IT departments investigate cloud-based offerings as part of their internal sourcing and outsourcing decisions. To facilitate this cloud-based model, a WAN optimization solution should be able to intelligently pool and provision resources elastically in a simplified manner with excellent manageability for enterprisewide deployments.
- Branch-office and data center simplification: Organizations want simple enterprisewide deployment of multiple on-demand cloud-ready services with the smallest footprint possible and high return on investment (ROI).
- Software delivery of network applications: This trend continues to accelerate with the proliferation and maturation of server virtualization technologies from vendors such as VMware, Citrix, and Microsoft. In addition to addressing the challenges of VDI, the WAN must now provide a state-of-the-art secure cloud connection. Therefore, a WAN optimization solution must be transparent and jointly validated and supported by leading industry vendors.
- Security and data protection: Certain regulatory requirements, including the Payment Card Industry (PCI), Health Insurance Portability and Accountability Act (HIPAA), Sarbanes-Oxley, and Federal Core Desktop initiatives, are mandating stringent security for the transmission of sensitive data, and security standards continue to evolve in response to increasing numbers of compromised systems. The WAN must not only optimize applications and data, but also protect them.

Unique Advantages of Cisco WAAS

Cisco WAAS offers numerous benefits that distinguish it from other WAN optimization products and provides the most choices for WAN optimization with the broadest portfolio on the market today:

- Software-based WAN optimization solutions
  - Cisco WAAS on the Cisco ISR G2 platform provides router-integrated, on-demand WAN optimization for branch offices. The Cisco Services-Ready Engine (SRE) Modules on the Cisco ISR G2 platform decouples software services from the underlying hardware and can deliver WAN optimization as an on-demand service as required by business objectives and IT budget. This approach makes better use of existing investments while offering business agility.
  - Cisco vWAAS is a virtual appliance that accelerates business applications delivered from private and virtual private cloud infrastructure, helping ensure an optimal user experience. Cisco vWAAS enables cloud providers to rapidly create WAN optimization services with little network configuration or disruption. Cisco vWAAS employs policy-based configuration in Cisco Nexus® 1000V Series Switches, which allows association with application server virtual machines as they are instantiated or moved.

    - Cisco WAAS Express extends the Cisco WAAS product portfolio with a small-footprint, cost-effective Cisco IOS® Software solution integrated into Cisco ISR G2 devices to offer bandwidth optimization capabilities. Cisco WAAS Express increases remote-user productivity, reduces WAN bandwidth costs, and offers investment protection by interoperating with existing Cisco WAAS infrastructure.
    - Cisco WAAS Mobile delivers bidirectional compression, application-specific accelerators, and flow optimizers for mobile and remote users in situations in which neither an appliance nor a branch-office router is available or practical, and for public cloud environments that cannot support an appliance.
- Full appliance portfolio
    - Branch-office appliances support Cisco WAAS virtual blades for local hosting of branch-office IT services, reducing the branch-office footprint.
    - Scalable data center platforms support small to large data centers across a wide range of deployment scenarios and price points.
- Cisco AppNav technology: Cisco AppNav enables customers to virtualize WAN optimization resources in the data center by pooling them into one elastic resource in a manner that is policy based and on demand, with exceptionally low-latency performance. Customers can add capacity or dedicate capacity to specific applications or geographies based on business requirements with no change to existing network configurations or topologies. Cisco AppNav integrates transparently into any physical or virtual network infrastructure, providing significant investment protection for existing network designs. Cisco AppNav for Cisco WAAS provides flexible deployment options, as shown in Figure 3.
- Citrix Ready WAN optimization: Cisco WAAS 5.1 is fully certified and jointly supported by Citrix for use with Citrix HDX XenApp and XenDesktop solutions. Preconfigured acceleration for Citrix XenDesktop and XenApp using Citrix's default security and other configuration settings enables out-of-the-box deployment that scales securely while enabling high performance over the WAN.
- Cisco WAAS Central Manager: HTML 5 user-friendly interfaces provide detailed visibility into application performance, pass-through traffic, and the control and monitoring of specific context-aware devices, including clusters.

Cisco WAAS also offers a proven end-to-end architectural approach with Cisco Validated Designs to reduce TCO and ease deployment challenges.

Cisco WAAS is the only WAN optimization solution that has published jointly validated designs with major application vendors such as Oracle, SAP, Microsoft, and IBM. Validated designs assist Cisco customers by offering best practices to successfully incorporate IT infrastructure such as Cisco switches, routers, security devices, and servers, thus significantly reducing the risk of deploying WAN optimization to accelerate these applications. Coupled with award-winning Cisco global support and advanced services, Cisco WAAS gives customers a significant set of resources to help ensure full network integration while reducing maintenance costs and deployment time.

For example, with Microsoft, Cisco has developed an optimized branch-office architecture that uses Cisco WAAS to optimize performance of centralized applications such as Microsoft Exchange, SharePoint, and file services, and most Microsoft Windows branch-office services and applications can be locally hosted on Cisco WAAS devices using Cisco WAAS virtual blades. The Cisco WAAS optimization for Microsoft Windows protocols was developed with Microsoft, and the relevant intellectual property rights (IPRs) are licensed from Microsoft.

Network Services Integration Provides Transparent, Secure, and Reliable Application Performance

Cisco WAAS transparent architecture enables integration into the network and preservation of existing network services, thereby making WAN acceleration easy to deploy and operate.

- Network transparency and preservation of IP and TCP header information allows ease of operation and interoperability with network services such as QoS, NetFlow, access control lists (ACLs), firewalls, Cisco Performance Routing (PfR), and IP service-level agreements (SLAs).
- Cisco WAAS offers automatic discovery of optimization devices, simplifying operations for all types of WAN architecture (including Multiprotocol Label Switching [MPLS], hierarchical networks, and hub-and-spoke topologies).
- Cisco WAAS integrates with all the Cisco firewalls - including Cisco IOS Firewall, Cisco PIX® Firewall Software, Cisco ASA 5500 Series Enterprise Firewall Edition, and Cisco Catalyst® 6500 Series Firewall Services Module (FWSM) - to provide the only solution in the industry that gives customers full stateful firewall inspection and network virus-scanning capabilities for accelerated traffic.
- For inline deployments, Cisco WAAS offers a low-latency VoIP traffic bypass feature that has been stress-tested with Cisco VoIP test beds.

Deployment Options

Cisco WAAS provides flexible deployment options, as shown in Figure 3 and summarized in Table 2.

Figure 3. Cisco WAAS Deployment Options for Branch-Office and Mobile Employees

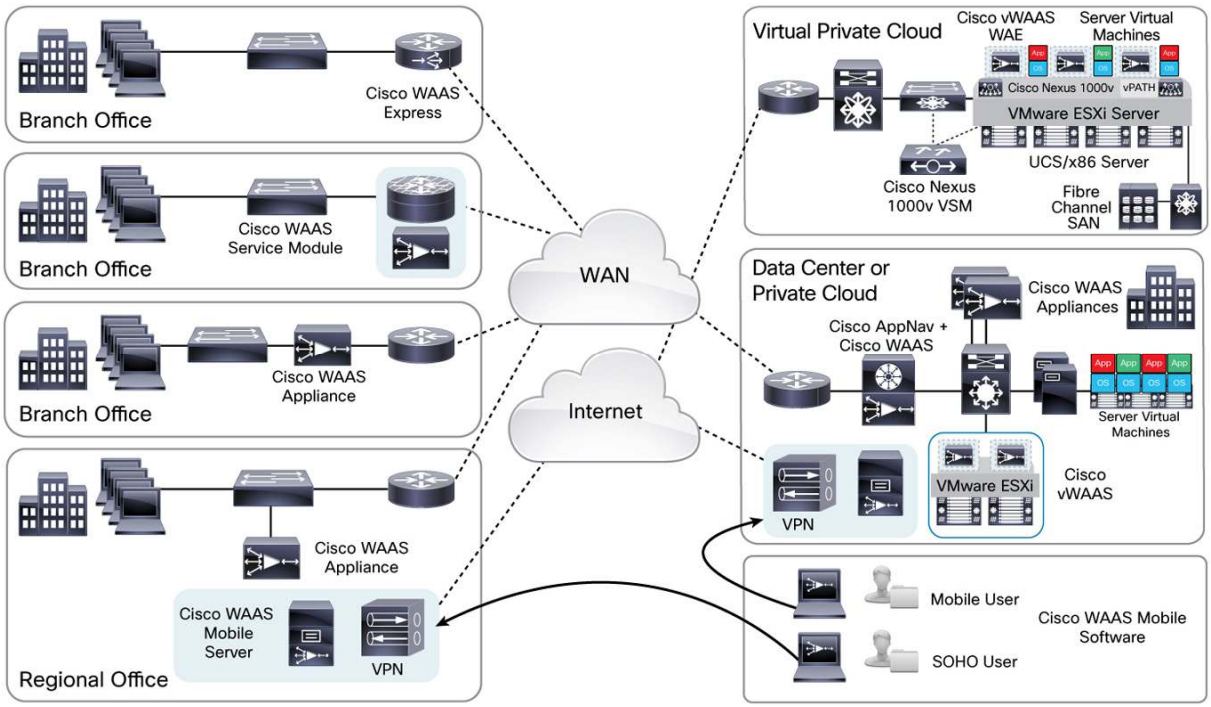


Table 2. Cisco WAAS Flexible Deployment Options

Deployment Location	Cisco WAAS Product Family					
	Cisco WAAS Appliances	Cisco vWAAS	Cisco WAAS Modules on Cisco ISR and ISR G2	Cisco WAAS Express on ISR G2	Cisco WAAS Mobile Client	Cisco WAAS Mobile Server
Branch office	Yes	Yes	Yes	Yes	-	-
Data center	Yes	Yes	-	-	-	Yes
Private cloud, virtual private cloud, and public cloud	Yes	Yes	-	-	-	Yes
Mobile and home-office PCs	-	-	-	-	Yes	-

Features and Benefits

Table 3 summarizes the main features and benefits of Cisco WAAS. For detailed information about acceleration for mobile users, please refer to the Cisco WAAS Mobile data sheet. For the features and benefits of Cisco WAAS Express, please refer to the Cisco WAAS Express data sheet.

Table 3. Main Benefits and Features of Cisco WAAS

Benefit	Feature
WAN optimization • Eliminate or defer expensive WAN bandwidth upgrades	• **Transport flow optimization (TFO):** TFO improves application packet flow under unfavorable WAN conditions such as packet loss and small initial windows while helping ensure fairness. • **Data redundancy elimination (DRE):** DRE is an advanced form of network compression that uses a bidirectional database to store previously seen TCP traffic and replace redundant patterns with very small signatures. DRE can provide up to 100:1 compression depending on the data being examined. • **Adaptive persistent session-based compression:** This type of compression can provide up to an additional 5:1 compression.
Application acceleration • Improve employee productivity • Consolidate branch-office servers • Centralize branch-office IT resources such as storage and backup tapes and reduce operating costs	• **Protocol acceleration:** Application-specific latency is reduced through a variety of application-layer techniques such as read-ahead, operation prediction, connection reuse, message multiplexing, pipelining, and parallelization, resulting in LAN-like performance despite deployment over a WAN. • **Application optimizers:** Protocol-specific acceleration is available for Microsoft Windows file sharing (Common Internet File System [CIFS]); Microsoft Exchange (Messaging API [MAPI] and MAPI over SSL); encrypted MAPI [eMAPI], HTTP and HTTPS applications such as Oracle, SAP, and Microsoft SharePoint and Outlook Web Access (OWA); Microsoft Windows print services; UNIX Network File System (NFS); and Citrix ICA. These features improve end-user application response times, significantly improving employee productivity. • **Content prepositioning:** Centralized policy-based file distribution and prepositioning can be used to push files to edge Cisco WAAS devices, accelerating software patch distribution and file access for all users.
Ease of initial and ongoing deployment	• **Network transparency:** Cisco WAAS preserves all existing network services. • **Client, server, and application transparency:** No modifications to clients, servers, or applications are needed. • **Automatic peer discovery:** Cisco WAAS devices automatically discover peers, reducing the number of configuration steps. • **Quickstart wizard:** Use of the wizard eliminates many configuration steps. The wizard includes defaults for faster deployment. • **Management and monitoring:** Intuitive workflow-based management and real-time monitoring are provided. Diagnostic and troubleshooting tools help reduce mean time to resolution (MTTR).
Flexible deployment options for cloud computing	For private and virtual private cloud environments: • **Agile:** Implement agile virtual machine-based deployments on standard x86 servers, such as Cisco Unified Computing System™ (Cisco UCS) servers. • **Application-specific WAN optimization:** Use Cisco Nexus 1000V Series port profiles and Cisco vPath to create value-added WAN optimization services on a per-application basis in your catalog of cloud services (for example, use Cisco vWAAS only for Microsoft SharePoint or Exchange) for optimized delivery to remote branch-office users. • **Flexible scale-out Cisco WAAS deployment:** Using policy-based configuration in the Cisco Nexus 1000V Series Switch, you can associate Cisco vWAAS services with application server virtual machines as they are instantiated or moved in response to dynamic application load demand in the cloud. This capability enables cloud providers to offer rapid delivery of WAN optimization services with little network configuration or disruption to achieve a cloud consumption and delivery model. • **Multitenant:** Cisco vWAAS reduces the hardware footprint needed for multitenant deployments.

Benefit	Feature
	• **DRE on SAN:** Cisco vWAAS offers an option to allow its DRE database to be hosted on the SAN to provide an improved fault-tolerant response and to support virtual machine mobility requirements. • **Validated sizing benchmarks on Cisco UCS servers:** Cisco vWAAS can be hosted on any x86 server that supports the VMware ESX and ESXi 4.0 hypervisor. Sizing benchmarks and performance metrics provided on the Cisco UCS platform result in lower risk for cloud deployments. For public cloud environments: • **Accelerated SaaS applications:** Cisco WAAS accelerates SaaS applications, such as Salesforce.com, delivered from the public SaaS cloud. SaaS applications are typically HTTPS based and can be configured in an easy and scalable manner. In addition, Cisco WAAS Mobile can be used to accelerate access to hosted infrastructure-as-a-service (IaaS) applications delivered from public cloud platforms, such as Amazon.com, to remote mobile users. • **Cloud agnostic:** Cisco vWAAS can be deployed in public clouds with the Cisco Nexus 1000V Series to obtain benefits similar to those for private clouds. The Cisco vWAAS solution is public-cloud agnostic.
Delivery of high-quality live and on-demand video • Eliminate need for expensive WAN bandwidth upgrades • Avoid complex configuration • Centralize branch-office video servers	• **Easy-to-deploy live video with edge-stream splitting:** Automated edge-stream splitting helps ensure that only one video stream is downloaded over the WAN regardless of the number of users in the branch office who are viewing that stream. • **Recorded video on demand (VoD):** VoD files can be published using prepositioning on edge Cisco WAAS devices. • **Server offload:** Live and on-demand video features offer server offload capabilities that can enable up to a 10 times reduction in the number of data center video servers.
Locally hosted branch-office IT services • Reduce branch-office device footprint • Deploy branch-office IT services with flexibility and agility	• **Network-embedded virtualization:** Third-party services can be hosted on isolated virtual blades. This architecture maintains native performance for WAN optimization while using the same hardware platform for additional hosted services. • **Virtual blades:** This feature can be used to deploy many different Microsoft Windows and Linux branch-office services on Cisco WAAS Appliances within hours instead of the days or weeks often required for dedicated hardware-based deployments. Certified and supported hosted services include Microsoft Active Directory, Domain Name System (DNS), Dynamic Host Configuration Protocol (DHCP), and print services using Microsoft Windows Server 2003, 2008, or 2008 R2; Cisco Network Analysis Module (NAM); and Cisco Application and Content Network System (ACNS). **Note:** Because Cisco vWAAS is a virtual appliance, it does not support the virtual blades feature available on physical Cisco Wide Area Virtualization Engine (WAVE) appliances.
Simplified central management and monitoring • Enhance usability with intuitive workflow-based management tools • Enhance visibility through real-time monitoring of connections with application performance management	• **Cisco WAAS Central Manager:** This workflow-based tool manages central configuration, provisioning, real-time monitoring, fault management, logging, and customized reporting with the capability to create scheduled reports for up to 2500 Cisco WAAS devices within a Cisco WAAS topology. • **Comprehensive statistics:** Comprehensive logs, reports, graphs, and statistics for Cisco Wide Area Application Engine (WAE) device functions help IT administrators optimize system performance and troubleshooting. • **Monitoring, reporting, traps, and alerts:** Real-time monitoring of connections, Simple Network Management Protocol (SNMP) Versions 2c and 3, Simple Mail Transport Protocol (SMTP) authentication, and syslog are supported. • **Centralized software upgrades:** Administrators can remotely schedule upgrades or version rollbacks. • **Application performance management:** NetQoS SuperAgent and Cisco WAAS together uniquely provide accurate reports about end-to-end application response time and WAN bandwidth utilization. • **Easy integration with software distribution tools:** Tools include Short Message Service (SMS), LANDesk, Altiris, and BigFix solutions. • **XML API:** The XML API can be used to integrate Cisco WAAS Central Manager into customers' network management and monitoring systems.
Scalability and high availability	• **Out-of-path deployment:** Cisco WAAS can be deployed using Web Cache Communication Protocol Version 2 (WCCPv2) for high-availability clustering and N+1 load balancing for up to 32 Cisco WAAS devices within a WCCPv2 service group. Policy-based routing (PBR) is also supported as a deployment mechanism. • **Physical inline interception:** Cisco WAAS appliances can be deployed transparently using a four-port network interface card (NIC) with fail-to-wire capability in the event of failure, helping ensure that network connectivity is not lost. The inline option provides high scalability and active-active failover through daisy-chain clustering. • **Cisco Application Control Engine (ACE):** Cisco WAAS deployed with Cisco ACE can scale up to 16 million TCP connections and up to 64 Gbps of bandwidth, supporting the largest deployments. • **Configuration backup and restore:** In the event of hardware failure, the reprovisioning and restore process can be handled remotely using Cisco WAAS Central Manager. • **Redundant WAN link support:** Cisco WAAS supports environments with redundant WAN links, redundant routers, and asymmetric routing to improve high availability and optimization efficiency.

Benefit	Feature
Security	• **Data-at-rest encryption:** All data on the Cisco WAAS disk is secured with 256-bit Advanced Encryption Standard (AES) encryption and automatic key management. • **Data-in-flight security:** Cisco firewalls perform stateful inspection of accelerated traffic. • **Acceleration of SSL applications:** Existing enterprise security architecture is preserved when accelerating SSL applications. • **Data access security:** All security-related protocol commands are delegated to the file server and the domain controller. No additional domain security or user configuration is necessary. • **Management access security:** The Cisco WAAS Central Manager offers authentication, authorization, and accounting (AAA) integration with external authentication providers such as Microsoft Active Directory, RADIUS, and TACACS+ and supports role-based access control (RBAC) to help ensure security. • **Network security:** Cisco WAAS and Cisco firewalls secure accelerated traffic with stateful firewall inspection and network virus scanning using Cisco IOS Intrusion Prevention System (IPS). No other vendor preserves security for accelerated traffic.

Licensing

Cisco WAAS offers the following licenses based on feature capabilities:

- Cisco WAAS Transport license: This license provides the WAN optimization features of Cisco WAAS, including DRE, Lempel-Ziv (LZ) compression, and TFO, optimizing application delivery to the branch office.
- Cisco WAAS Enterprise license: This license provides Transport license functions plus application-specific accelerations for protocols including CIFS, MAPI, HTTP, SSL, NFS, ICA, and Microsoft Windows print services to facilitate application acceleration, WAN optimization, and IT consolidation.
- Cisco WAAS Live Video license: This add-on license provides wide-scale delivery of live video to the branch office across the WAN. It offers automated edge-stream splitting to help ensure that only one video stream is downloaded over the WAN regardless of the number of users in the branch office viewing that stream. This option is available only when the Cisco WAAS Enterprise license is ordered.
- Cisco WAAS Virtual Blade license: This add-on license enables local hosting of server OS and applications on Cisco WAAS appliances. This option is available only when the Cisco WAAS Enterprise license is ordered and is available for Cisco WAVE 294, 594 and 694 with Cisco WAAS Software Version 4.4 or later.
- Cisco WAAS Virtual Blade license with Microsoft Windows Server Core 2008: This add-on license offers organizations flexible delivery of branch-office IT services while reducing the device footprint. The first set of certified and supported hosted services includes Microsoft Windows Active Directory, DNS, DHCP, and print as part of the Microsoft Windows Server 2008 core services. This option is available only for Cisco WAVE 294, 594, and 694 with Cisco WAAS Software Version 4.4 or later.

For details about models, pricing, and sizing, please contact your local Cisco account representative.

Ordering Information

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

Upgrade from Previous Cisco WAAS Software Versions

Customers who have an active Software Application Support plus Upgrades (SASU) contract in place can upgrade from previous Cisco WAAS Software versions to Cisco WAAS Software Version 5.1 with no additional cost.

WCCP Support

WCCP is a free Cisco IOS Software feature that runs on the following Cisco platforms:

- Cisco routers such as the Cisco 1800, 2800, and 3800 Series ISRs; Cisco 1900, 2900, and 3900 Series ISR G2; Cisco Nexus 7000 Series Switches; and Cisco ASR 1000 Series Routers.
- Cisco switches such as the Cisco Catalyst 3750, 4500, and 6500 Series Switches and Cisco Nexus 7000 Series Switches.

Service and Support

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 the network for new applications to extend network intelligence and the power of your business. For more information about Cisco Services, see Cisco Technical Support Services and Cisco Advanced Services.

For More Information

For more information about Cisco WAAS Software Version 5.1, visit http://www.cisco.com/go/waas or contact your local account representative.

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