Cisco Wide Area Application Services Software

Cisco Wide Area Application Services Software Release 5.3

Product Overview

Cisco® Wide Area Application Services (WAAS) currently 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 Secure HTTP (HTTPS), cloud, and file applications.

Cisco WAAS enables organizations to implement important business initiatives, including:

- Highly secure, scalable, enterprise wide bring-your-own-device (BYOD) solutions
- High-performance virtual desktop infrastructure (VDI) and Cisco Virtual Experience Infrastructure (Cisco VXI™) solutions
- 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-office 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, the Cisco AppNav Module for WAAS won the 2012 Best of Interop award (Figure 1).

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

Key Features and Benefits

Cisco WAAS Software Release 5.3 helps customers further enable secure, scalable virtualized desktop environments for Citrix XenDesktop/XenApp and the Citrix Independent Computing Architecture (ICA) protocol by adding Secure Sockets Layer/Transport Layer Security (SSL/TLS) support for ICA.

Cisco WAAS Software Release 5.3 further enhances secure email support with the addition of Microsoft NT LAN Manager (NTLM) support for Encrypted Messaging Application Programming Interface (EMAPIEMAPIEMAPI), increases reporting capability by providing additional reporting capability with NetFlow v9 export support, and improves manageability and provisioning with key feature additions to Cisco Prime™ Infrastructure and Cisco WAAS Central Manager.

With Release 5.3 Cisco WAAS is extended to include:

- **Optimization of Citrix ICA over SSL/TLS connections.** The Citrix Secure Gateway/Access Gateway helps secure access to enterprise network computers running XenApp/XenDesktop and provides a secure Internet gateway between Citrix XenDesktop/XenApp and user devices. All Citrix ICA data traversing the Internet between a remote workstation and the secure gateway is encrypted using the SSL or TLS protocol.

  With Release 5.3 Cisco WAAS provides optimization of both single-stream and multistream ICA over SSL/TLS and interoperates with Cisco Adaptive Security Appliance (ASA) platforms and Citrix NetScaler Secure Gateway/Access Gateway (CSG/CAG) for ICA/SSL support.
- **NTLM for EMAPI.** Cisco WAAS now supports both Kerberos and NTLMv1 for EMAPII for Microsoft Exchange 2007 and 2010, plus Extended Session Security (ESS), or NLTMv2 in eMAPI acceleration.

  Cisco WAAS leads the industry in the optimization of encrypted communications using standards-based security. Cisco WAAS support for the EMAPI protocol has been jointly validated by and is supported by both Cisco and Microsoft.
- **NetFlow v9 export support.** With Release 5.3 Cisco WAAS now supports the export of traffic flow-level information to external collectors using the NetFlow v9 and Internet Protocol Flow Information Export (IPFIX) formats. Unlike NetFlow v5, which as a fixed format, NetFlow v9 offers a template-based format to collect IP traffic information.
- **Additional Cisco Prime Infrastructure and WAAS Central Manager features**

  Cisco Prime Infrastructure single sign-on: This feature allows you to launch Central Manager transparently from the Cisco Prime Infrastructure application.

  Configuration-only backup: The Cisco WAAS Central Manager supports backing up of the configuration data only. Use the **cms database backup config** command to back up just the configuration data.

  Option to enable and configure source IP swapping: You can now configure service-insertion swap src-ip for an AppNav-XE cluster for AppNav-XE controllers and WAAS nodes on the WAAS Central Manager.

Exceptional Advantages of Cisco WAAS

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

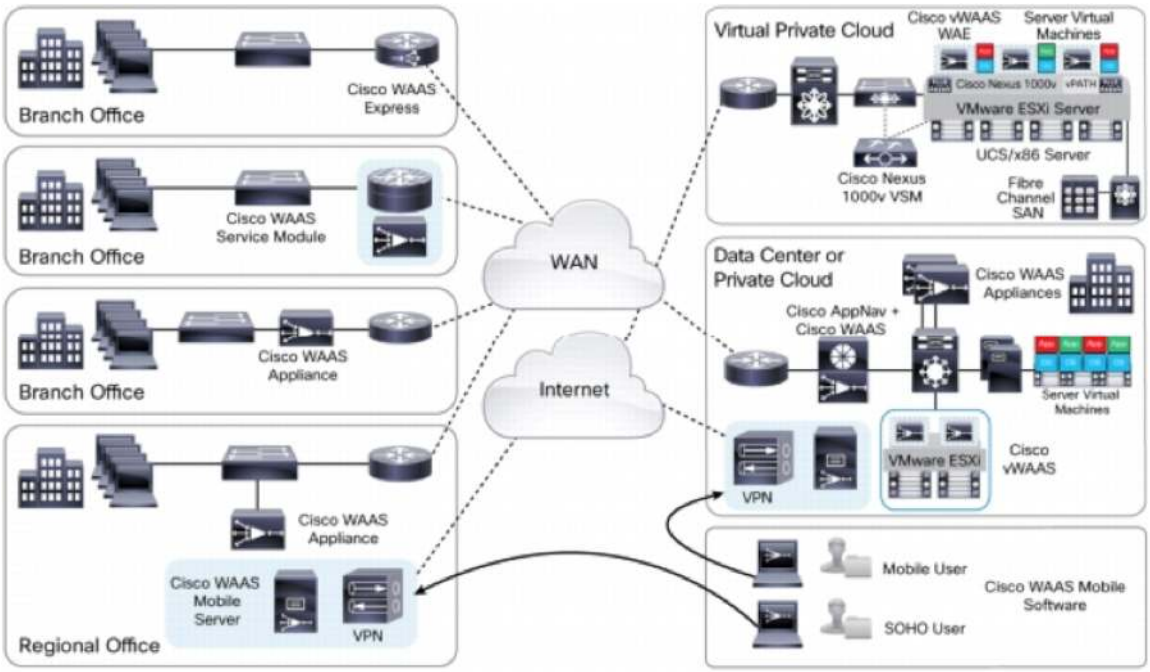
- Software-based WAN optimization solutions:
  - Cisco WAAS on the Cisco Integrated Services Routers Generation 2 (ISR G2) platform provides router-integrated, on-demand WAN optimization for branch offices. The Cisco Services-Ready Engine (SRE) Modules on the Cisco ISR G2 platform decouple software services 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 Virtual Wide Area Applications Services (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 allows 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 ISR WAAS is a full-featured WAAS accelerator running natively on the Cisco 4451-X Integrated Services Router (ISR). The Cisco 4451-X also contains Cisco AppNav for intelligent flow redirection. Cisco ISR WAAS also includes an EZConfig program for a single command that enables ISR WAAS on the Cisco 4451-X.
  - 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. It does so in situations in which neither an appliance nor a branch office router is available or practical, and in 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 helps customers 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 2.

Figure 2. Cisco WAAS Deployment Options for Branch-Office and Mobile Employees



- **Citrix-ready WAN optimization:** Cisco WAAS is fully certified as Citrix Ready 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 allows out-of-the-box deployment that scales more 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 total cost of ownership (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. 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 protocol was developed with Microsoft, and the relevant intellectual property rights (IPRs) are licensed from Microsoft.

Network Services Integration Provides Transparent, Highly 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 quality of service (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 architectures (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 voice-over-IP (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 2 and summarized in Table 1.

Table 1. Cisco WAAS Flexible Deployment Options

Deployment Location	Cisco WAAS Product Family					
	Cisco WAAS appliances	Cisco vWAAS and ISR WAAS	Cisco WAAS Modules on Cisco ISR, ISR G2, and Cisco ISR Application Experience (ISR-AX)	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 2 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 2. Main Features and Benefits of Cisco WAAS

Benefit: WAN optimization • Eliminate or defer expensive WAN bandwidth upgrades
Features • **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.
Benefit: Application acceleration: • Improve employee productivity • Consolidate branch-office servers • Centralize branch-office IT resources such as storage and backup tapes, and reduce operating costs
Features • **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:** You can use 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. • **Print Application Optimization:** (Print AO)—Increasingly, many customers are consolidating print servers at the head-end or aggregation point. For long- latency WAN branch offices, Cisco Print Application Optimization AO can drastically improve the response time. Starting with Cisco WAAS release 5.2 and later, Server Message Block (SMB) version 1 print traffic optimization is supported for customers who transition from Common Internet File System (CIFS) to SMB.
Benefit: Ease of initial and ongoing deployment
Features • **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). • **EZ Config for Cisco ISR4451**: The EZConfig program is a single command-line interface (CLI) command that launches an interactive mode for enabling ISR -WAAS on the Cisco ISR 4451-X. The program walks you through a series of questions and enables the corresponding Cisco AppNav Controller, container, interface, and connected application configurations.
Benefit: Flexible deployment options for cloud computing
Features: For private and virtual private cloud environments: • **Agility:** 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 of 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 helps 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. • **AppNav-XE on the Cisco ISR4451-X, Cisco Cloud Services Router 1000V Series (Cisco CSR 1000Vv Series) and Cisco ASR 1000 Series Aggregation Services Routers:** As a part of Cisco IOS XE Software, the AppNav-XE component is made up of a distribution unit called

the Cisco AppNav Controller and service nodes.

The advantages of using the AppNav-XE component are:

- It can intelligently redirect new flows based on the load on each service node. This includes the loads of individual Layer 7 application accelerators.
- For flows that do not require any optimization, service nodes can inform the Cisco AppNav Controller to directly pass -through the packets, thereby minimizing the latency and resource utilization and usage.
- The AppNav-XE component supports Virtual Route Forwarding (VRF) so that VRF information is preserved when traffic returns from a service node.
- For special applications such as MAPI (Exchange) and VDI (Citrix), the AppNav-XE component helps ensures that flows from the same client and destined to the same server and server port are redirected to the same service node.
- You can use an AppNav Controller group to optimize asymmetric flows. An asymmetric flow is when the traffic in one direction goes through one AppNav Controller and the return traffic goes through a different AppNav Controller, but both AppNav Controllers redirect the traffic to the same service node.
- Inter-router high availability, where (if one router goes down, the traffic can be re-routed to a different router within the AppNav Controller group), keepsing the traffic flows uninterrupted.
- With intra-router high availability of the AppNav Controller on Cisco ASR 1000 Series platforms that have dual RP route processors or dual Cisco FabricPaths. This means that if the active RP route processor fails, the standby route processor RP takes over; or if the active FP FabricPath fails, the standby FP FabricPath takes over and the flows continue uninterrupted. The intra-router high- availability feature is available only on the Cisco ASR 1000 Series platforms.
- Cisco vPath 2.0 support: vWAAS is able to perform with vPath 2.0 with WAAS release 5.2 and later.

Cisco vPath 2.0 includes support for Virtual Extensible LAN (VXLAN) and service chaining. The vPath service chaining feature allows virtual machine (VM) traffic to be treated by multiple services in a given sequence. Customers with the Cisco Nexus® 1000V Switch deployed using vPath 2.0, can select to deploy the Cisco vWAAS Release 5.3 release vWAAS with other virtual services such as the Cisco Adaptive Security Appliance (ASA 1000V Adaptive Security Appliance) and, Cisco Virtual Security Gateway (VSG). - Figure 3 below illustrates how the services and technologies run together in a network.

- **Multitenant:** Cisco vWAAS reduces the hardware footprint needed for multitenant deployments.
- **DRE on storage area network (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 versions 4.1 through 5.1 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, you can use 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:** You can deploy 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.

Benefits: Delivery of high-quality live and on-demand video:

- Eliminate need for expensive WAN bandwidth upgrades
- Avoid complex configuration
- Centralize branch-office video servers

Features

- **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):** You can publish 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 tenfold reduction in the number of data center video servers.

Benefits: Locally hosted branch-office IT services:

- Reduce branch-office device footprint
- Deploy branch-office IT services with flexibility and agility

Features

- **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:** You can use 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.

Benefits: 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

Features

- **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 Cisco WAAS devices and ISR routers running Cisco WAAS Express (WAASX) 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 exclusively provide accurate reports about end-to-end application response time and WAN bandwidth utilization and usage.
- **Easy integration with software distribution tools:** Tools include Short Message Service (SMS), LANDesk, Altiris, and BigFix solutions.
- **XML application programming interface (API):** You can use the XML API can be used to integrate Cisco WAAS Central Manager into customers' network management and monitoring systems.

Benefits: Scalability and high availability

Features

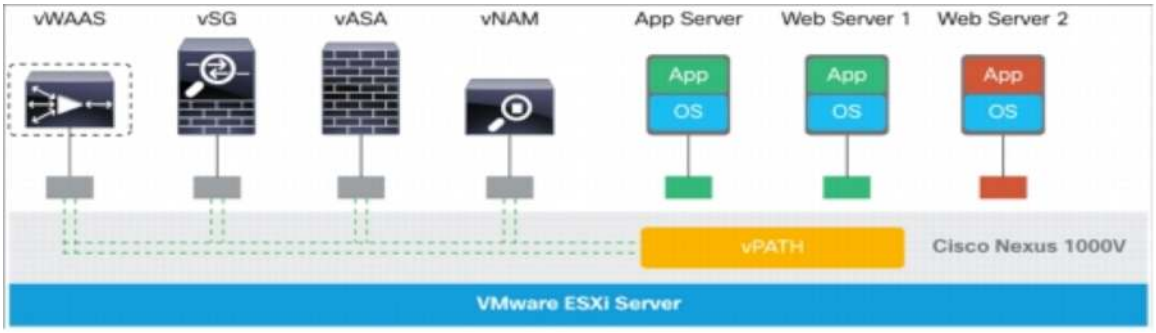
- **Out-of-path deployment:** You can deploy Cisco WAAS can be deployed using Web Cache Communication Protocol Version 2 (WCCPv2) for high-availability clustering and N + 1 load balancing for up to 32 Cisco WAAS devices within a WCCPv2 service group. Cisco Policy-Based Routing (PBR) is also supported as a deployment mechanism.
- **Physical inline interception:** You can deploy Cisco WAAS appliances can be deployed transparently using a 4-port network interface card (NIC) with fail-to-wire capability in the event ofif failure occurs, helping to ensure that network connectivity is not lost. The inline option provides high scalability and active-active failover through daisy-chain clustering.
- **Configuration backup and restore:** In the event of If hardware failure occurs, you can handle 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.
- **Cisco AppNav technology:** Cisco AppNav helps customers to virtualize WAN optimization resources 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.

Benefits: Security

Features

- **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 it 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 currently preserves security for accelerated traffic.

Figure 3. Cisco vPath Technologies and Services in a Network



For more information about Cisco Nexus 1000V and vPath technology, please refer to the Cisco Nexus 1000V data sheet found on Cisco.com.

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. (*Transport license is offered for Cisco SRE deployments only*.)
- **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. (An optional license for SRE, this license also ships with each WAVE hardware platform.)
- **ISR-AX license for ISR G2 routers:** This license provides a combination of licenses including Data license with Application Visibility and Control (AVC), and Right to Use (RTU) for WAAS (Enterprise license) and/or vWAAS for ISR G2 routers.
- **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 you order the Cisco WAAS Enterprise License.
- **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 you order the Cisco WAAS Enterprise License. It is available for Cisco WAVE 294, 594, and 694 Wide Area Virtualization Engines 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, contact your local Cisco account representative.

Ordering Information

For ordering information, 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 5.3 at no additional cost.

WCCP Support

Web Cache Communication Protocol (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; second-generation Cisco 1900, 2900, and 3900 Series ISRs; 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 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.

For More Information

For more information about Cisco WAAS Software Version 5.3, visit http://www.cisco.com/go/waas or contact your local Cisco account representative.

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