Cisco Wide Area Application Services (WAAS)

Why Choose WAN Optimization?

As many organizations expand, they are challenged with two important but competing needs: how to optimize their network response time as they adopt new business applications and how to reduce costs. Moving toward using more bandwidth-heavy applications such as video or virtual desktops, across increasingly larger areas, organizations are experiencing corresponding increased bandwidth consumption and communications latency. Bandwidth continues to represent a significant portion of operating expenses for WANs as businesses adopt video, voice, and other applications. Beyond sending large files, businesses need to connect their remote workers to applications hosted in their data centers. Beyond latency concerns for traffic traveling across countries and continents, companies must also account for the mobile nature of their users and potential cost savings by consolidating data centers. WAN optimization is a category of tools that can help companies address these needs.

Why Choose Cisco WAAS?

Cisco helps businesses build and grow their expanded networks with Cisco® Wide Area Application Services (WAAS), a set of cost-effective WAN optimization solutions that accelerate applications over the WAN, provide local hosting of branch-office IT services, optimize end-user experiences, and reduce bandwidth and latency problems.

Cisco WAAS:

- Provides enhanced end-user experience and overall business productivity by doubling effective bandwidth and reducing latency
- Integrates into existing network infrastructure, providing the most flexible deployment options in the industry
- Reduces cost by enabling centralization of IT services and decreasing bandwidth expenses with lowest total cost of ownership and fastest return on investment
- Enables the evolution to the cloud by removing performance barriers that pose a challenge to data center virtualization, a step along the way to true cloud service

Which WAAS Is Right for You?

Customers can deploy WAN optimization throughout their entire network by choosing from the ever-expanding portfolio of Cisco WAAS offerings. Designed to optimize network service delivery in a range of form factors that include both hardware and software, companies can deploy WAN optimization over a broader range of deployment options and use cases:

- **Appliances:** The Cisco Wide Area Virtualization Engine (WAVE) appliance portfolio has options that scale from small branch offices to large data centers. Cisco WAAS solutions deliver unmatched optimization and acceleration for business-critical applications such as video, virtual desktop sessions, and Software as a Service (SaaS). Cisco WAVE appliances are simple to scale and simple to manage at scale.

Software options include:

- **Express:** Cisco WAAS Express (WAASx) offers WAN optimization natively on Cisco IOS® Software for small branch offices in a cost-effective, router-integrated form factor compatible with existing WAAS devices. Further, it interoperates with router services including policy provisioning, monitoring, and management. Cisco WAASx provides WAN optimization without complete equipment upgrades, resulting in easy deployment and reduced operating expenses and branch-office footprint.
- **Mobile:** Cisco WAAS Mobile extends application acceleration to mobile workers and addresses associated unique challenges. Cisco WAAS Mobile provides industry-leading performance under the most challenging network connectivity conditions, has a small PC footprint, and helps reduce the costs normally associated with installation of client software on PCs. Cisco WAAS Mobile is ideal for public cloud environments that cannot support an appliance.
- **Virtual Appliances:** Cisco Virtual WAAS (vWAAS) is the first cloud-ready WAN optimization solution that accelerates applications delivered from private and virtual private cloud infrastructure, using policy-based on-demand orchestration. Cisco vWAAS can be virtualized on the industry-leading VMware ESX and ESXi hypervisor and on the Cisco Unified Computing System™ (Cisco UCS™) and x86 servers in on-demand, elastic, and multitenant manner.
- **Modules:** Cisco WAAS is available as software on Cisco Services-Ready Engine (SRE) modules for Cisco Integrated Services Routers Generation 2 (ISR G2) routers and as dedicated modules with Cisco WAAS network module (NME) adaptors for Cisco ISRs. The SRE branch-office applications, including Cisco WAAS WAN optimization, can be provisioned on demand without a physical visit to the branch office.

Cisco WAAS Advantages

Router and Service Integration

Cisco WAAS delivers the industry's highest degree of integration with first- and second-generation Cisco Integrated Services Routers, and transparently retains valuable router service functions. WAAS is integrated into the router through two form factors: Cisco WAAS Express and on the Cisco SRE.

Validated Designs Accelerate Return on Investment

Cisco WAAS customers can achieve fast integration of WAN optimization with published Cisco Validated Designs covering a range of IT deployments and popular enterprise applications that incorporate other network elements such as Cisco switches, routers, and security devices. In addition, Cisco offers award-winning global support and advanced services, providing customers with the resources to help ensure rapid time to value for WAN optimization deployments.

Table 1. Cisco WAAS Family of Appliances

Cisco WAAS Model or License	Cisco WAVE 274	Cisco WAVE 294 (New)	Cisco WAVE 474	Cisco WAVE 574	Cisco WAVE 594 (New)	Cisco WAE 674
Product Image						
Network Location	Small Branch Office	Small Branch Office	Small to Medium Branch Office	Large Branch Office or Campus	Large Branch Office or Campus	Large Branch Office, Data Center, or Campus
WAN Bandwidth (Mbps)	2	10–20	4	8–20	50–100	45–90
Optimized (TCP) Connections	200	200–400	400	750–1,300	750–1,300	2,000–4,000
Optimized Throughput (Mbps)	90	100–150	90	100–150	250–300	250–350

Cisco WAAS Model or License	Cisco WAVE 694 (New)	Cisco WAE 7341	Cisco WAVE 7541 (New)	Cisco WAE 7371	Cisco WAVE 7571 (New)	Cisco WAVE 8541 (New)
Product Image						
Network Location	Large Branch Office, Data Center, or Campus	Data Center or Campus	Data Center or Campus	Data Center or Campus	Data Center or Campus	Data Center or Campus
WAN Bandwidth (Mbps)	200	310	500	1,000	1,000	2,000
Optimized (TCP) Connections	2,500–6,000	12,000	18,000	50,000	60,000	150,000
Optimized Throughput (Mbps)	450–500	1,000	1,000	2,500	1,000	1,000

Table 2 Summarizes the performance for WAAS Mobile, vWAAS and WAAS Express

Table 2. Cisco Mobile WAAS, Virtual WAAS, and WAAS Express

	Cisco WAAS Express for Cisco ISR G2 Routers						Mobile Software	Virtual Appliance on VMware ESX or ESXi
Cisco WAAS Model or License	Cisco 880 ISR	Cisco 890	Cisco 1941	Cisco 2901	Cisco 2900 Series (Excluding Cisco 2901)	Cisco 3900 Series	Cisco WAAS Mobile	Cisco vWAAS
Network Location	Teleworker	Teleworker	Small Branch Office	Small Branch Office	Small to Medium-Sized Branch Office	Large Branch Office	Teleworker	Data Center
WAN Bandwidth (Mbps)	1.5	2	4	6	6	10		8–310
Optimized (TCP) Connections	75	75	150	150	200	500		750–12,000
Optimized Throughput (Mbps)	4	4	8	12	12	20		100–1,000

Open Architecture Offers Customer Choice

Cisco has developed a broad partner ecosystem of applications and Application Performance Management (APM) vendor solutions. Customers can use Cisco WAAS Central Manager and the Cisco Network Analysis Module (NAM) for monitoring in addition to independent-software-vendor (ISV) partner-validated designs and use cases to enable optimal deployments of a wide range of applications. Customers can also integrate third-party APM solutions to assess and monitor application performance. The result of this industry-leading ecosystem is the right set of design resources to help ensure successful WAN- optimization deployments. Table 3 summarizes performance of the Cisco WAAS modules.

Table 3. Cisco WAAS Modules Performance Summary

Cisco WAAS Modules	Network Modules (NM)			Service Modules (SRE)	
Cisco WAAS Model or License	Cisco (NME-WAE-302)	Cisco (NME-WAE-502)	Cisco (NME-WAE-522)	Cisco SRE 700 Service Module	Cisco SRE 900 Service Module
Product Image					
Network Location	Small Branch office	Small to Medium-Sized Branch Office	Medium-Sized Branch Office	Small to Medium-Sized Branch Office	Medium-Sized to Large Branch Office
WAN Bandwidth (Mbps)	4	4	8	20	50
Optimized (TCP) Connections	250	400	700	200–500	200–1,000
Optimized Throughput (Mbps)	90	150	200	200	300

For More Information

For more information about Cisco WAAS, please visit http://www.cisco.com/go/waas.

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