








Cisco WAAS WAN Optimization

The industry’s highest performance and widest range of WAN optimization solutions.
Delivered in integrated, appliances and virtual form factors.



WAAS Wide Area Virtualization Engine (WAVE) Appliances

The Cisco® WAN Optimization platforms dramatically scale the delivery of an optimal user experience to more users, applications, and devices across the entire organization.

						
Features	WAVE 294	WAVE 594	WAVE 694	WAVE 7541	WAVE 7571	WAVE 8541
TCP Connections	200/400	750/1300	2500/6000	18,000	60,000	150,000
WAN BW Support	10 Mbps/20 Mbps	50 Mbps/100 Mbps	200 Mbps/200 Mbps	500 Mbps	1000 Mbps	2000 Mbps
DRAM	4GB, 8 GB Optional	8 GB, 12 GB Optional	16 GB, 24 GB Optional	24 GB	48 GB	96 GB
Usable storage	250 GB	500 GB	600 GB	2.2 TB	3.1 TB	4.2 TB
Maximum HDD	1* 250–GB HDD	500–GB HDD data storage (optional second HDD)	600–GB HDD	6 * 450 GB	8 * 450 GB	8 * 600 GB
RAID support	–	RAID–1 (optional on 594)	RAID–1	RAID–5	RAID–5	RAID–5
Virtual blades	Up to 2	Up to 4	Up to 6	Not supported	Not supported	Not supported
Network interfaces	Two 10/100/1000BASE-T	Two 10/100/1000BASE-T	Two 10/100/1000BASE-T	Two 10/100/1000BASE-T	Two 10/100/1000BASE-T	Two 10/100/1000BASE-T
Power	One 400W AC power supply	• One 450W AC power supply • Redundant power available as an option	• One 450W AC power supply • Redundant power available as an option	• Two 650W AC power supplies • 1 + 1 redundancy; hot-swappable	• Two 650W AC power supplies • 1 + 1 redundancy; hot-swappable	• Two 650W AC power supplies • 1 + 1 redundancy; hot-swappable
Fan	Five fans	Redundant 40-mm fans; hot-swappable	Redundant 40-mm fans; hot-swappable	Redundant 40- and 60-mm fans; hot-swappable	Redundant 40- and 60-mm fans; hot-swappable	Redundant 40- and 60-mm fans; hot-swappable
Rack units	1 (can be used as a desktop unit as well)	1	1	2	2	2
I/O module	Bundled with 4-port GE inline. Optionally supports 8-port copper supported	Optionally supports 4-port copper, 8-port copper, and 4-port GE fiber available	Optionally supports 4-port copper, 8-port copper, and 4-port GE fiber available	Optionally supports 8-port copper, 4-port GE fiber, and 2-port 10GR SFP+	Optionally supports 8-port copper, 4-port GE fiber, and 2-port 10GR SFP+	Optionally supports 8-port copper, 4-port GE fiber, and 2-port 10GR SFP+
Console	RJ-45 serial console, USB, and mini-USB; auto-detect	RJ-45 serial console, USB, and mini-USB; auto-detect	RJ-45 serial console, USB, and mini-USB; auto-detect	RJ-45 serial console, USB, and mini-USB; auto-detect	RJ-45 serial console, USB, and mini-USB; auto-detect	RJ-45 serial console, USB, and mini-USB; auto-detect
Dimensions						
Height	42 mm (1.69 in.)	42 mm (1.69 in.)	42 mm (1.69 in.)	87 mm (3.42 in.)	87 mm (3.42 in.)	87 mm (3.42 in.)
Width	429 mm (16.89 in.)	429 mm (16.89 in.)	429 mm (16.89 in.)	429 mm (16.89 in.)	429 mm (16.89 in.)	429 mm (16.89 in.)
Depth	370 mm (14.55 in.)	516 mm (20.33 in.) (includes power-supply handles)	516 mm (20.33 in.) (includes power-supply handles)	632 mm (24.88 in.) (includes power supply handles)	632 mm (24.88 in.) (includes power supply handles)	632 mm (24.88 in.) (includes power supply handles)
Shipping dimensions (with packaging)	55 x 50.5 x 19.7 cm (21.69 x 19.88 x 7.75 in.)	67.3 x 55 x 19.7 cm (26.50 x 21.69 x 7.75 in.)	67.3 x 55 x 19.7 cm (26.50 x 21.69 x 7.75 in.)	78 x 55 x 25.9 cm (30.75 x 21.69 x 10.19 in.)	78 x 55 x 25.9 cm (30.75 x 21.69 x 10.19 in.)	78 x 55 x 25.9 cm (30.75 x 21.69 x 10.19 in.)
Maximum weight	7.44 kg (16.40 lb)	10.21 kg (22.51 lb)	10.21 kg (22.51 lb)	21.62 kg (47.66 lb)	21.62 kg (47.66 lb)	21.62 kg (47.66 lb)
Shipping weight	10.0 kg (22.0 lb)	12.93 kg (28.50 lb)	12.93 kg (28.50 lb)	24.0 kg (53.0 lb)	24.0 kg (53.0 lb)	24.0 kg (53.0 lb)
Environmental Specifications						
Universal input	Range line voltage: 90 to 132 VAC 180 to 264 VAC	Range line voltage: 90 to 132 VAC 180 to 264 VAC	Range line voltage: 90 to 132 VAC 180 to 264 VAC	Range line voltage: 90 to 132 VAC 180 to 264 VAC	Range line voltage: 90 to 132 VAC 180 to 264 VAC	Range line voltage: 90 to 132 VAC 180 to 264 VAC
Operating temperature	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)	0 to 40°C (32 to 104°F)
Nonoperating temperature	-30 to 60°C (-22 to 140°F)	-30 to 60°C (-22 to 140°F)*	-30 to 60°C (-22 to 140°F)*	-30 to 60°C (-22 to 140°F)*	-30 to 60°C (-22 to 140°F)*	-30 to 60°C (-22 to 140°F)*
Humidity	Operating: 10 to 90% RH (noncondensing) Nonoperating: 5 to 95% RH (noncondensing)	Operating: 10 to 90% RH (noncondensing) Nonoperating: 5 to 95% RH (noncondensing)	Operating: 10 to 90% RH (noncondensing) Nonoperating: 5 to 95% RH (noncondensing)	Operating: 10 to 90% RH (noncondensing) Nonoperating: 5 to 95% RH (noncondensing)	Operating: 10 to 90% RH (noncondensing) Nonoperating: 5 to 95% RH (noncondensing)	Operating: 10 to 90% RH (noncondensing) Nonoperating: 5 to 95% RH (noncondensing)
Altitude	Operating: 3,050m (10,000 ft) Nonoperating: 4572m (15,000 ft)	Operating: 3,050m (10,000 ft)	Operating: 3,050m (10,000 ft)	Operating: 3,050m (10,000 ft)	Operating: 3,050m (10,000 ft)	Operating: 3,050m (10,000 ft)
Regulatory Compliance						
Compliance	CE marking					
Safety	UL 60950-1, 2nd edition, 21 CFR 1040, CSA22.2-No. 60950-1 (2nd edition), IEC/EN 60950-1 (2nd edition), AS/NZS 60950, and GB4943-1995 (all platforms)					
EMC	47 CFR Part 15 Class A, AS/NZS CISPR22 Class A, CISPR22 Class A, EN 55022 Class A, ICES 003 Class A, VCCI Class A, EN 55024, EN 61000-3-2, EN 61000-3-3, CISPR24, GB9254-2008, KN22 Class A, and KN24 (All platforms)					

Virtual WAAS (vWAAS)

Cisco Virtual WAAS (vWAAS) is a virtual appliance that accelerates business applications delivered from private and virtual private cloud infrastructures, helping ensure an optimal user experience.

	vWAAS-200	vWAAS-750	vWAAS-6000	vWAAS-12000	vCM-100N	vCM-2000N
Number of vCPU	1	2	4	4	2	4
RAM	2 GB	4 GB	8 GB	12 GB	2 GB	8 GB
Disk	160 GB	250 GB	500 GB	750 GB	250 GB	600 GB
The vWAAS Central manager can manage nodes with two license sizes: <ul style="list-style-type: none">• License to Manage 100 WAAS Nodes (all form-factors)• License to Manage 2000 WAAS Nodes (all form-factors)						
Virtual WAAS (vWAAS) licenses range from 200 to 1200 connections						
TCP Connection	200	750	6000	12000		
WAN BW Supported	10 Mbps	50 Mbps	200 Mbps	500 Mbps		



WAAS Mobile (WAASm)

Extend WAAS Software application acceleration benefits to mobile employees who travel outside the branch office and to branch-office and mobile users who access applications hosted in public cloud environments.

Client System Requirements	Minimum	Recommended
Operating system	Microsoft Windows 2000 or later	Microsoft Windows XP or Vista or Windows 7
CPU	750 MHz	1.5 GHz
System memory (RAM)	256 MB	512 MB
Disk space available	80 MB	1 GB
Server System Requirements		
Operating system	• Microsoft Windows 2003 Release 2 (SP1 and SP2) Standard • Microsoft Internet Information Server (IIS) Version 6 or later • Microsoft ASP.NET Version 2.0 framework (included in installation package) • SQLite (included in installation package)	
CPU	Dual-core 1.8 GHz	
System memory (RAM)	2 GB	
Hard drive	80 GB; 7.2-Kbps RPM	
Interface	Dual Gigabit Ethernet network interface card (NIC)	
Purchasing Options		
Cisco WAAS Mobile Server Software*, Cisco WAAS Mobile Starter Kit*, Cisco WAAS Mobile Cluster License*, Cisco WAAS Mobile 25 Concurrent User License*, Cisco WAAS Mobile 100 Concurrent User License*, Cisco WAAS Mobile 500 Concurrent User License*		

WAAS on ISR G2 Services Ready Engine (SRE)

Cisco WAAS provides the highest degree of integration with the Cisco Integrated Services Routing (ISR) G2. The Cisco Services Ready Engine (SRE) Modules on the ISR G2, decouples software services from the underlying hardware, and can deliver WAN optimization as an on-demand service.

		
Features	SRE 700/710	SRE 900/910
License Requirements	20 Mbps	50 Mbps
Enterprise License	200, 500, and 100 TCP Connections	200, 500, and 100 TCP Connections
Transport License	200, 500 TCP Connections	200, 500 TCP Connections
Product Specifications		
DRAM	4 GB	4 GB (default) or 8 GB
CPU	Intel Core2 1.86 GHz	Intel Core2 Duo 1.86 GHz
Hard disk	One 500 GB	Two 500 GB
RAID support	None	RAID 1
Hot-swappable hard disk drive (HDD)	None	Yes
Internal network interfaces	Gigabit Ethernet connectivity to router backplane	Gigabit Ethernet connectivity to router backplane
External network interfaces	• One RJ-45 Gigabit Ethernet connector • One USB connector	• One RJ-45 Gigabit Ethernet connector • One USB connector
Compact flash memory	2-GB internal USB flash-memory module	2-GB internal USB flash-memory module
Cisco IOS® Software (on router)	Release 15.0(1)M	Release 15.0(1)M
Embedded hardware-based cryptography acceleration	No	Yes
Power consumption (maximum)	35W	50W
Dimensions		
Height	1.54 in. (40 mm)	1.54 in. (40 mm)
Width	7.44 in. (189 mm)	7.44 in. (189mm)
Depth	7.5 in. (191 mm)	7.5 in. (191 mm)
Shipping dimensions (with packaging)	9.5 x 7.5 x 2.5 in. (24.1 x 19.1 x 6.4 cm)	9.5 x 7.5 x 2.5 in. (24.1 x 19.1 x 6.4 cm)
Maximum weight	2.5 lb (1.1 kg)	2.5 lb (1.1 kg)
Environmental Specifications		
Operating temperature (normal)	32 to 104°F (0 to 40°C)	32 to 104°F (0 to 40°C)
Operating temperature (short term)	23 to 131°F (-5 to +55°C)	23 to 131°F (-5 to +55°C)
Humidity	10 to 85% operating	10 to 85% operating
Altitude	• 104°F (40°C) at sea level, 104°F (40°C) at 6,000 ft (1,800 m), 86°F (30°C) at 13,000 ft (4,000 m), 27.2°C (81°F) at 15,000 ft (4,600 m) • Note: De-rate 34.5°F (1.4°C) per 1,000 ft above 6,000 ft (per 300 m above 2,600 m)	
Transportation and Storage Conditions		
Temperature	-4 to 149°F (-20 to +65°C)	-4 to 149°F (-20 to +65°C)
Relative humidity	5 to 95%	5 to 95%
Altitude	15,000 ft (4,600 m)	15,000 ft (4,600 m)
Regulatory Compliance		
Safety	• UL 60950-1, 1st edition, CAN/CSA-C22.2 No. 60950-1-03, IEC/EN 60950-1:2001, (2nd edition -2005), GB4943-2001, AS/NZS 60950-1, NOM-019	
EMC	Emission: 47 CFR Part 15 Class A, CISPR22 Class A, EN300386 Class A, EN55022 Class A, EN61000-3-2, EN61000-3-3, SD/EMI (India), KN22 (Korea), VCCI Class I, AS/NZS CISPR 22 Class A Immunity: CISPR24, EN300386, EN50082-1, EN55024, SD/EMI (India), KN22 (Korea), EN61000-6-1	

WAAS Express (WAASx)

Cisco WAAS Express increases the amount of available bandwidth for small to midsize branch offices and remote locations, while accelerating TCP-based application operating in a WAN environment. Cisco WAAS Express is fully interoperable with WAAS on SRE modules, WAAS Appliances, and Virtual WAAS (vWAAS), can be managed by a common WAAS Central Manager.

A single Cisco IOS Software Universal image encompassing all Cisco IOS Software technology feature sets is delivered with all ISR G2 platforms. You can enable advanced features by activating a software license on the Universal image.

In previous generations of access routers, these feature sets required you to download a new software image. Technology packages and feature licenses, enabled through the Cisco software licensing infrastructure, simplify software delivery and decrease the operational costs of deploying new features.

Integrated Services Router G2 Platform	ISR 88x	ISR 89x	ISR 1921*	ISR 1941	ISR 2901	ISR 2911	ISR 2921	ISR 2951	ISR 3925	ISR 3945
Recommended # of Users	1-10	1-10	1-5	15-20	15-20	25	25	25	50	50
Max. TCP Connections	75	75	50	150	150	200	200	200	500	500
Total DRAM Required	768 M	768 M	512 M	2.5 G	2.5 G	2.5 G	2.5 G	4 G	4 G	4 G
Max. WAN BW Supported	1.5 Mbps	2 Mbps	512 Kbps	4 Mbps	6 Mbps	6 Mbps	6 Mbps	6 Mbps	10 Mbps	10 Mbps

• WAAS Express requires maximum DRAM installed as indicated. Typical Interfaces - 3G, T1, E1, Multi T1s, Multi E1s, and Serial. Performance Testing Conducted with IOS FW, VPN (IPsec), NAT, and, CoS

* 1921 - no DRE support - only TFO/LZ, no additional memory required

For more information, visit cisco.com/go/waas