CISCO

How to Buy

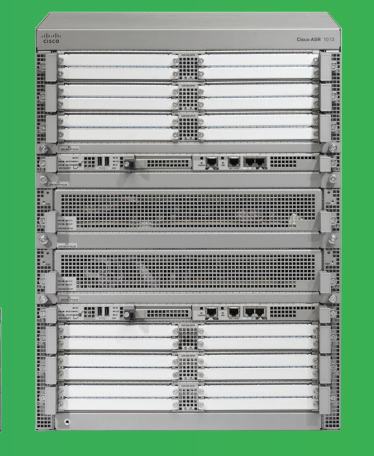# Enterprise Routing Portfolio
Delivering an Uncompromised Experience
Across the Branch, WAN, Data Center and Cloud

Cisco ISR 800 Series Cisco ISR 4000 Series Cisco ASR 1000 Series

Cisco Integrated Services Routers (ISR)
Converged Infrastructure to Enable the Next Generation Branch Services

Feature	819	860VAE	880	890	4321	4331	4351	4431	4451-X
Form Factor	Desktop & Ruggedized (M2M)	Small Desktop	Desktop	Desktop	1 RU Desktop	1 RU	2 RU	1 RU	2 RU
Integrated WAN Ports	1 GE; 1 Serial	1 GE; 1 VADSL; 1 G.SHDSL	1 FE; 1 VADSL; 1 G.SHDSL	1 GE (1 SFP); 1 VADSL; 1 G.SHDSL	1 GE/SFP; 1 GE	1 GE/SFP; 1 GE; 1 SFP	2 PoE GE/SFP; 1 GE/SFP	2 PoE GE/SFP; 2 GE/SFP	2 PoE GE/SFP; 2 GE/SFP
Performance	15 Mbps	8 Mbps	15 Mbps	25 Mbps	50 Mbps Upgradable to 100 Mbps	100 Mbps Upgradable to 300 Mbps	200 Mbps Upgradable to 400 Mbps	500 Mbps Upgradable to 1 Gbps	1 Gbps Upgradable to 2Gbps
Management Port	N/A	N/A	N/A	N/A	1 GE (Integrated Out of Band)	1 GE (Integrated Out of Band)	1 GE (Integrated Out of Band)	1 GE (Integrated Out of Band)	1 GE (Integrated Out of Band)
Network Interface Modules (NIM)	0	0	0	0	2	2	3	3	3
Enhanced Services Module (SM-X)	N/A	N/A	N/A	N/A	N/A	1 Single Wide	2 Single or 1 Double Wide	N/A	2 Single or 1 Double Wide
Integrated Services Card (ISC) Slots	N/A	N/A	N/A	N/A	1 (PVDM 4)	1 (PVDM 4)	1 (PVDM 4)	1 (PVDM 4)	1 (PVDM 4)
USB Ports Type A	0	1	1	1 or 2	1	2	2	2	2
Default/Max Flash	512 MB~1 GB (fixed)	56~/128 MB (fixed)	128 MB/256 MB (fixed)	256 MB (fixed)	4 GB/16 GB	4 GB/16 GB	4 GB/16 GB	8 GB/32 GB	8 GB/32 GB
Default/Max DRAM	512 MB/1 GB	256~512 MB/256~512 MB	256~512 MB/512~1024 MB	256~512 MB/ 512~1024 MB	4 GB/8 GB	4 GB/16 GB	4 GB/16 GB	4 GB/16 GB	4 GB/16 GB
Power Supply Type	External: AC, DC	External AC	External AC, PoE	External AC, PoE	Internal: AC, PoE	Internal: AC, PoE	Internal: AC, PoE Optional DC	Internal: AC, PoE Optional DC	Internal: AC, PoE Optional DC
Redundant Power Supply	N/A	N/A	N/A	N/A	No	No	No	Yes, Internal RPS	Yes, Internal RPS
Module Online Insertion and Removal (OIR)	N/A	N/A	N/A	N/A	Yes	Yes	Yes	Yes	Yes
Server Virtualization Platform (UCS E-Series)	N/A	N/A	N/A	N/A	N/A	2 core single-wide, 4 core single-wide	2 core single-wide, 4 core single-wide, 6 core double-wide, 8 core single-wide	N/A	2 core single-wide, 4 core single-wide, 4 core double-wide, 6 core double-wide, 8 core double-wide

Advanced Security

Feature	819	860VAE	880	890	4321	4331	4351	4431	4451-X
Zone-based Firewall and NAT Services	VRF aware FW and NAT	VRF aware FW and NAT	VRF aware FW and NAT	VRF aware FW and NAT	VRF aware FW and NAT	VRF aware FW and NAT	VRF aware FW and NAT	VRF aware FW and NAT	VRF aware FW and NAT
Hardware VPN Acceleration (DES, 3DES, AES)	Yes	Yes	Yes	Yes	No	No	No	No	No
IPSEC VPN Services	FlexVPN, Easy VPN Remote, Dynamic Multipoint VPN (DMVPN), Group Encrypted Transport VPN (GET VPN) (May require Advanced IP Services license)	FlexVPN, Easy VPN Remote, Enhanced Easy VPN Remote	FlexVPN, Easy VPN Remote, Dynamic Multipoint VPN (DMVPN), Group Encrypted Transport VPN (GET VPN) (May require Advanced IP Services license)	FlexVPN, Easy VPN Remote server, Enhanced Easy VPN, Dynamic Multipoint VPN (DMVPN), Group Encrypted Transport VPN (GET VPN), V3PN, MPLS VPN	FlexVPN, Easy VPN Remote server, Enhanced Easy VPN, Dynamic Multipoint VPN (DMVPN), Group Encrypted Transport VPN (GET VPN), V3PN, MPLS VPN	FlexVPN, Easy VPN Remote server, Enhanced Easy VPN, Dynamic Multipoint VPN (DMVPN), Group Encrypted Transport VPN (GET VPN), V3PN, MPLS VPN	FlexVPN, Easy VPN Remote server, Enhanced Easy VPN, Dynamic Multipoint VPN (DMVPN), Group Encrypted Transport VPN (GET VPN), V3PN, MPLS VPN	FlexVPN, Easy VPN Remote server, Enhanced Easy VPN, Dynamic Multipoint VPN (DMVPN), Group Encrypted Transport VPN (GET VPN), V3PN, MPLS VPN	FlexVPN, Easy VPN Remote server, Enhanced Easy VPN, Dynamic Multipoint VPN (DMVPN), Group Encrypted Transport VPN (GET VPN), V3PN, MPLS VPN
SSL VPN	Yes	N/A	Yes	Yes	No	No	No	No	No
Intrusion Prevention	Yes	N/A	Yes *Requires Advanced IP Services license	Yes *Requires Advanced IP Services license	No	Yes	Yes	Yes	Yes
Network Foundation Protection	ACL, FPM, Control Plane Protection, Control Plane Policing (CoPP), QoS, Role-based CLI Access, Source-based RTBH, uRPF, SSHv2	ACL, QoS (limited support) Role-based CLI Access, Source-based RTBH, uRPF, SSHv2	ACL, FPM, Control Plan Protection, Control Plane Policing (CoPP), QoS, Role-based CLI Access, Source-based RTBH, uRPF, SSHv2 *Some features require Advanced IP Services license	ACL, FPM, Control Plan Protection, Control Plane Policing (CoPP), QoS, Role-based CLI Access, Source-based RTBH, uRPF, SSHv2	ACL, FPM, Control Plan Protection, Control Plane Policing (CoPP), QoS, Role-based CLI Access, Source-based RTBH, uRPF, SSHv2	ACL, FPM, Control Plan Protection, Control Plane Policing (CoPP), QoS, Role-based CLI Access, Source-based RTBH, uRPF, SSHv2	ACL, FPM, Control Plan Protection, Control Plane Policing (CoPP), QoS, Role-based CLI Access, Source-based RTBH, uRPF, SSHv2	ACL, FPM, Control Plan Protection, Control Plane Policing (CoPP), QoS, Role-based CLI Access, Source-based RTBH, uRPF, SSHv2	ACL, FPM, Control Plan Protection, Control Plane Policing (CoPP), QoS, Role-based CLI Access, Source-based RTBH, uRPF, SSHv2
Cisco Cloud Web Security	Yes (Requires Additional Subscription License)				Yes*	Yes*	Yes*	Yes*	Yes*
Identity Based Networking	802.1X, MAB, WebAuth, RADIUS CoA	MAB, WebAuth, RADIUS CoA	802.1X, MAB, WebAuth, RADIUS CoA	802.1X, MAB, WebAuth, RADIUS CoA	No	No	No	No	No
Cisco TrustSec	Security Group Tag Exchange Protocol (SXP), SGT over GETVPN, Port/L3 Interface/IP/Subnet-to-SGT mapping, SGT export in Flexible NetFlow				Security Group Tag Exchange Protocol (SXP), SGT over GETVPN, SGT over IPSEC, SGT over DMVPN, SGT-based ZBFW, Port/L3 Interface/IP/Subnet-to-SGT mapping, SGT export in Flexible NetFlow				

Unified Communication: Enabled via Unified Communications License for Universal IOS Image. CCME/SRST support through separate feature licenses

Feature	819	860VAE	880	890	4321	4331	4351	4431	4451-X
Local Conferencing	N/A	N/A	N/A	Yes	Yes	Yes	Yes	Yes	Yes
Digital Signal Processor Support	N/A	N/A	N/A	N/A	PVDM4	PVDM4	PVDM4	PVDM4	PVDM4
Cisco Unified Survivable Remote Site Telephony Support	N/A	N/A	N/A	Up to 5 on V models	Up to 50	Up to 100	Up to 750	Up to 1200	Up to 2000
Cisco Unified Communications Manager Express Support	N/A	N/A	N/A	Up to 5 on V models	Up to 50	Up to 100	Up to 250	Up to 350	Up to 450
Cisco Unity Express (NM, SM or ISM)	N/A	N/A	N/A	N/A	Use Cisco Unity Connection on UCSE	Use Cisco Unity Connection on UCSE	Use Cisco Unity Connection on UCSE	Use Cisco Unity Connection on UCSE	Use Cisco Unity Connection on UCSE
Cisco Unified Border Element (CUBE) (SIP/H.323 Sessions)	N/A	N/A	N/A	N/A	100	400	1000	3000	6000
nano Cisco Unified Border Element (nanoCUBE) (Sessions)	N/A	N/A	25	50	N/A	N/A	N/A	N/A	N/A
Digital Voice and Video (T1/E1 channels)	N/A	N/A	N/A	N/A	Up to 240	Up to 360	Up to 720	Up to 720	Up to 1200
Analog/BRI Voice	N/A	N/A	FXS 4, FXO 1, BRI 1 on V models	N/A	Up to 8 ports (FXS, FXO, E/M, BRI)	Up to 12 ports (FXS, FXO, E/M, BRI)	Up to 20 ports (FXS, FXO, E/M, BRI)	Up to 12 ports (FXS, FXO, E/M, BRI)	Up to 20 ports (FXS, FXO, E/M, BRI)

Routing and Multicast

Feature	819	860VAE	880	890	4321	4331	4351	4431	4451-X
IPv4 Routing Protocols	RIP v1/v2, EIGRP, OSPF, BGP, PBR	RIP v1/v2, BGP	RIP v1/v2, EIGRP, OSPF, BGP, PBR, PRR *Requires Advanced IP Services license	RIP v1/v2, EIGRP, OSPF, BGP, PBR, PRR	RIP v1/v2, EIGRP, OSPF, BGP, PBR, PRR	RIP v1/v2, EIGRP, OSPF, BGP, PBR, PRR	RIP v1/v2, EIGRP, OSPF, BGP, PBR, PRR	RIP v1/v2, EIGRP, OSPF, BGP, PBR, PRR	RIP v1/v2, EIGRP, OSPF, BGP, PBR, PRR
Multicast Routing Protocols	PIM-SM, mroute (static route), and MLD	N/A	PIM-SM, mroute (static route), and MLD *Requires Advanced IP Services license	PIM-SM, mroute (static route), and MLD	PIM-SM, mroute (static route), and MLD	PIM-SM, mroute (static route), and MLD	PIM-SM, mroute (static route), and MLD	PIM-SM, mroute (static route), and MLD	PIM-SM, mroute (static route), and MLD
IPv6 Routing Protocols	EIGRP, RIP, OSPFv3, IS-IS, BGP and PBR	N/A	EIGRP, RIP, OSPFv3, IS-IS, BGP and PBR *Requires Advanced IP Services license	EIGRP, RIP, OSPFv3, IS-IS, BGP and PBR	EIGRP, RIP, OSPFv3, IS-IS, BGP and PBR	EIGRP, RIP, OSPFv3, IS-IS, BGP and PBR	EIGRP, RIP, OSPFv3, IS-IS, BGP and PBR	EIGRP, RIP, OSPFv3, IS-IS, BGP and PBR	EIGRP, RIP, OSPFv3, IS-IS, BGP and PBR

Wireless LAN

Feature	819	860VAE	880	890	4321	4331	4351	4431	4451-X
Integrated 802.11 b/g/n Access Point	N/A	Yes	Yes	Yes	N/A	N/A	N/A	N/A	N/A
Integrated 802.11 a/b/g/n Access Point	N/A	Yes	Yes	Yes	N/A	N/A	N/A	N/A	N/A
Unified and Autonomous Mode	Both	Autonomous	Both	Both	N/A	N/A	N/A	N/A	N/A
RP-TNC Connectors for Field-replaceable Optional High-gain Antennas	Yes	No (integrated antennas)	No (integrated antennas)	No (integrated antennas)	N/A	N/A	N/A	N/A	N/A
Diversity (Dual Antennas)	Yes	Yes	Yes	Yes	N/A	N/A	N/A	N/A	N/A
Wireless LAN Controller Module	N/A	N/A	N/A	N/A	Available on UCS E-Series	Available on UCS E-Series	Available on UCS E-Series	Available on UCS E-Series	Available on UCS E-Series

Wireless WAN

Feature	819	860VAE	880	890	4321	4331	4351	4431	4451-X
3G /4G Cellular	Yes	N/A	Yes (3G)	N/A	Yes*	Yes*	Yes*	Yes*	Yes*
TNC Connectors for Field-replaceable Optional High-gain Antennas	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Diversity (Dual Antennas)	Yes	N/A	Yes	N/A	N/A	N/A	N/A	N/A	N/A
Outdoor Antennas	Yes	N/A	Yes	N/A	N/A	N/A	N/A	N/A	N/A

Integrated Switching

Feature	819	860VAE	880	890	4321	4331	4351	4431	4451-X
Maximum Switched Ethernet Ports	4	5	4	8	N/A	24	48	N/A	48
Maximum Switched Ethernet LAN Ports with POE	N/A	1	2	4	N/A	24	48	N/A	48
PoE Support (Wattage) Without PoE Boost	N/A	15.4W	31W	62W	120W	250W	500W	250W (With Optional Power Supply Redundancy)	500W (With Optional Power Supply Redundancy)
PoE Support (Wattage) With PoE Boost	N/A	N/A	N/A	260W	530W	990W	500W (No Power Supply Redundancy)		950W (No Power Supply Redundancy)
EtherSwitch Service Module Type (Width)	N/A	N/A	N/A	N/A	N/A	1 Single	2 Single or 1 Double	N/A	2 Single or 1 Double

Application Services

Feature	819	860VAE	880	890	4321	4331	4351	4431	4451-X
Intelligent Path Control	PfR	N/A	PfR (Requires Advanced IP Services license)	PfR	PfR	PfR	PfR	PfR	PfR
Network Contention Control	QoS, HQoS	QoS, HQoS (HQoS on 860VAE-W only)	QoS, HQoS	QoS, HQoS	QoS, HQoS	QoS, HQoS	QoS, HQoS	QoS, HQoS	QoS, HQoS
Application Visibility	NBAR v2	N/A	NBAR v2	NBAR v2	NBAR V2	NBAR V2	NBAR V2	NBAR V2	NBAR V2
WAN Optimization	Limited WAAS Express	N/A	WAAS Express (1 GB DRAM minimum)	WAAS Express (1 GB DRAM minimum)	ISR-WAAS	ISR-WAAS, vWAAS on UCS E-Series	ISR-WAAS, vWAAS on UCS E-Series	ISR-WAAS	ISR-WAAS, vWAAS on UCS E-Series
Akamai Connect	No	No	No	No	Yes	Yes	Yes	Yes	Yes
Cisco Application Centric Infrastructure	Application Policy Infrastructure Controller (APIC) with Enterprise Module								

* Planned for 1H 2015

Cisco Aggregation Services Routers (ASR) 1000 Series

Feature	1001-X	1002-X	1004	1006	1013
Form Factor	1 RU	2 RU	4 RU	6 RU	13 RU
Chassis	Scalable to 20 Gbps	Scalable to 36 Gbps	Scalable to 40 Gbps	Scalable to 100 Gbps	Scalable to 100 Gbps Designed for 360 Gbps
Integrated WAN Ports	6 GE ports 2x10GE	6 GE ports			
Embedded Services Processor (ESP)	Integrated 2.5-Gbps ESP Upgradable via a software activated license to 20 Gbps	Integrated ESP Upgradable via a software activated license from 5 Gbps to 10, 20, or 36 Gbps	ASR1000-ESP10 (single or dual) ASR1000-ESP10-N (single or dual): Scalable to 10 Gbps ASR1000-ESP20 (single or dual): Scalable to 20 Gbps or ASR1000-ESP40 (single or dual): Scalable to 40 Gbps	ASR1000-ESP10 (single or dual) ASR1000-ESP10-N (single or dual): Scalable to 10 Gbps ASR1000-ESP20 (single or dual): Scalable to 20 Gbps or ASR1000-ESP40 (single or dual): Scalable to 40 Gbps ASR1000-ESP100 (single or dual): Scalable to 100 Gbps	ASR1000-ESP40 (single or dual): Scalable to 40 Gbps ASR1000-ESP100 (single or dual): Scalable to 200 Gbps
Route Processor (RP)	Integrated Route Processor with 8 GB memory, field upgradable to 16 GB memory	Integrated Route Processor with 4 GB memory, field upgradable to 8 GB or 16 GB memory	ASR1000-RP1 (single) 4 GB memory ASR1000-RP2 (single or dual) 8 GB or 16 GB memory	ASR1000-RP1 (single or dual) 4 GB memory ASR1000-RP2 (single or dual) 8 GB or 16 GB memory	ASR1000-RP2 (single or dual) 8 GB or 16 GB memory
SPA Interface Processor (SIP) Card Slots	Integrated	Integrated	2	3	6
Shared Port Adapter (SPA) Slots	1	3	8	12	24
Network Interface Module (NIM)	1	1			
Interface Support	FE, GE, 10GE, OC3 (POS/ATM), OC12 (POS/ATM), OC48 (POS), OC-192 (POS), channelized STM-1/OC3, (channelized+non-channelized) T3/DS0, T1/E1, Serial				
Forwarding Rate	Up to 17 Mpps Up to 20 Gbps Depending on which performance upgrade license is utilized	Up to 30 Mpps Up to 36 Gbps Depending on which performance upgrade license is utilized	Up to 15 or 23 Mpps Up to 10 or 20 or 40 Gbps-depending on ESP	Up to 15 or 23 or 59 Mpps Up to 10 or 20 or 40 or 100 Gbps-depending on ESP	Up to 23 or 59 Mpps Up to 40 or 100 Gbps
Minimum Cisco IOS XE Release	IOS XE 3.12	IOS XE 3.7.1S	IOS XE 2.1.0	IOS XE 2.1.0	IOS XE 3.1.0S
System DRAM Memory	8 GB (default); 16 GB (max.) – for integrated Route Processor	4 GB (default); 8 GB or 16 GB (max.) - for integrated Route Processor	4 GB (default); 4 GB (max.) - for ASR1000-RP1 8 GB (default); 16 GB (max.) - for ASR1000-RP2	4 GB (default); 4 GB (max.) - for ASR1000-RP1 8 GB (default); 16 GB (max.) - for ASR1000-RP2	8 GB (default); 16 GB (max.) – for ASR1000-RP2
Redundant Power Supply	Yes, Dual AC or DC by default	Yes, Dual AC or DC by default	Yes, Dual AC or DC by default	Yes, Dual AC or DC by default	Yes, Dual AC or DC by default

Advanced Security: Enabled instantly via Flexible Packet Inspection (FPI), IPsec and Firewall Licenses

Feature	1001-X	1002-X	1004	1006	1013
Zone-based Firewall and NAT services	Up to 20 Gbps VRF aware FW and VRF aware NAT	Up to 36 Gbps VRF aware FW and VRF aware NAT	Up to 10Gbps (ESP10), 20 Gbps (ESP20), 40Gbps (ESP40) VRF aware FW and VRF aware NAT	Up to 10Gbps (ESP10) 20Gbps (ESP20), 40Gbps (ESP40), 120Gbps (ESP100) VRF aware FW and VRF aware NAT	UP TO 40GBPS (ESP40), 120Gbps (ESP100), 200Gbps (ESP200) VRF aware FW aware NAT
Total Firewall Session	2M	2M	1M (ESP10) 2M (ESP20 and ESP40)	1M (ESP10) 2M (ESP20 and ESP40) 6M (ESP100)	2M (ESP40) 6M (ESP100 and ESP200)
VPN services	Ipsec, GRE + IPsec, VTI, FlexVPN, Easy VPN, Enhanced Easy VPN, Dynamic Multipoint VPN (DMVPN), 2547 over DMVPN, Group Encrypted Transport VPN (GET VPN), IPv6 IPsec SVTI ** FlexVPN is recommended over EasyVPN/DMVPN	IPsec, GRE + IPsec, VTI, FlexVPN, Easy VPN, Enhanced Easy VPN, Dynamic Multipoint VPN (DMVPN), 2547 over DMVPN, Group Encrypted Transport VPN (GET VPN), IPv6 IPsec SVTI ** FlexVPN is recommended over EasyVPN/DMVPN			
Onboard Hardware VPN Encryption (DES, 3DES, AES)	Yes, up to 8 Gbps *(Suite-B supported in control and data planes)	Yes, up to 4 Gbps (IMIX or 1400B) *(Suite-B supported in control and data plane)	Yes, up to 11 Gbps *(Suite-B supported in control plane)	Yes, up to 29 Gbps *(Suite-B supported in control plane with ESP10/20/40) **(Suite-B supported in both control and data plane with ESP100)	Yes, up to 29 Gbps *(Suite-B supported in control plane with ESP40) **(Suite-B supported in both control and data plane with ESP100)
Maximum IPsec Tunnels	4000	4000	4000	4000	4000
Netflow Event Logging– For Firewall and NAT services	Yes	Yes	Yes	Yes	Yes
Network Foundation Protection	ACL, FPM, Control Plane Protection (CPPr), Control Plane Policing (CoPP), QoS, Role-based CLI Access, Source-based RTBH, uRPF, SSHv2	ACL, FPM, Control Plane Protection (CPPr), Control Plane Policing (CoPP), QoS, Role-based CLI Access, Source-based RTBH, uRPF, SSHv2			
Cisco TrustSec	Security Group Tag Exchange Protocol (SXP), SGT-o-GET-VPN, SGT-o-IPSEC, SGT-o-DMVPN, SGT-based ZBFW	Security Group Tag Exchange Protocol (SXP), SGT-o-GETVPN, SGT-o-IPSEC, SGT-o-DMVPN, SGT-based ZBFW			

Unified Communication: Enabled instantly via CUBE License

Feature	1001-X	1002-X	1004	1006	1013
Cisco Unified Border Element (Enterprise Edition) — SIP Trunking (Managed)	5000	5000	16000+	16000+	N/A
Cisco Unified Border Element (SP Edition) – SIP Trunking (SP hosted)	5000	5000	16000+	16000+	N/A
cRTP	Yes	Yes	Yes	Yes	Yes
WebEx Node	No	Yes	Yes	Yes	Yes
B2B TelePresence Enablement	Yes	Yes	Yes	Yes	Yes

Routing and Multicast

Feature	1001-X	1002-X	1004	1006	1013
IPv4 Routing Protocols	RIP v1/v2, EIGRP, OSPF, BGP, PBR				
Multicast Routing Protocols	PIM-SM, mroute (static route), and MLD				
IPv6 Routing Protocols	EIGRP, RIP, OSPFv3, IS-IS, BGP and PBR				
Netflow v5/v9	Yes	Yes	Yes	Yes	Yes

High Availability

Feature	1001-X	1002-X	1004	1006	1013
In Service Software Upgrade (ISSU)	No	No	No	Yes	Yes
Software Redundancy (dual IOS on same Route Processor)	Yes	Yes	Yes	N/A (HW redundancy)	N/A (HW redundancy)
NSF/SSO	Yes	Yes	Yes	Yes	Yes

Quality of Service

Feature	1001-X	1002-X	1004	1006	1013
Hierarchical Quality-of-Service	3-level hierarchical QoS (e.g. on GRE tunnels), 256 Class-maps per policy, 4000 unique policy maps, support for 16,000 queues, allows all queues to have a minimum, maximum, and excess band-with with priority propagation	3-level hierarchical QoS (e.g. on GRE tunnels), 4000 unique policy maps, support for 232,000 queues, support for 464,000 queues, allows all queues to have a minimum, maximum, and excess band-width with priority propagation	3-level hierarchical QoS (e.g. on GRE tunnels), 256 Class-maps per policy, 4000 unique policy maps, support for 128,000 queues, allows all queues to have a minimum, maximum, and excess band-with with priority propagation	3-level hierarchical QoS (e.g. on GRE tunnels), 256 Class-maps per policy, 4000 unique policy maps, support for 464,000 queues, allows all queues to have a minimum, maximum, and excess band-width with priority propagation	3-level hierarchical QoS (e.g. on GRE tunnels), 256 Class-maps per policy, 4000 unique policy maps, support for 464,000 queues, allows all queues to have a minimum, maximum, and excess band-width with priority propagation

Application Services

Feature	1001-X	1002-X	1004	1006	1013
Application Acceleration/WAN Optimization	Yes, WCCPv2 to redirect traffic to WAAS Appliance, VRF-aware WCCP				
Application Visibility and Control (AVC)	Yes, 900+ protocols	Yes, 900+ protocols	Yes, 900+ protocols	Yes, 900+ protocols	Yes, 900+ protocols
Flexible Packet Matching (FPM)	Yes	Yes	Yes	Yes	Yes
Cisco Application Centric Infrastructure	Application Policy Infrastructure Controller (APIC) with Enterprise Module				

How to buy
To view buying options and speak with a Cisco sales representative, visit www.cisco.com/c/en/us/buy.

Cisco Cloud Services Router (CSR)1000V
Extending the Enterprise WAN to the Cloud

Virtualization and System Requirements	IPBase	SEC	AppX	AX
Server Requirements	Intel or AMD CPUs with clock frequency of at least 2.0 GHz, Gigabit Ethernet Interfaces			
Hypervisor Requirements	VMware ESXi 5.0 and 5.1, Red Hat Enterprise Virtualization (RHEV) 3.1, Red Hat Enterprise Linux (RHEL) 6.3, Citrix XenServer 6.1, Microsoft Hyper-V (Windows Server 2012 R2), Amazon Web Services AMI, Verizon eCloud			
Supported Hypervisor Features	Multiple Instances: Cloning, Templates, Snapshots; Interfaces: NIC Teaming; High Availability: vMotion, XenMotion, KVM Live Migration, VMware Fault Tolerance, VMware Distributed Resource Scheduler			
Virtual Machine Requirements	vCPU, 1 to 8 vCPU (based on throughput license); RAM: 2.5 GB to 16 GB (based on throughput license); Minimum Disk Space: 8 GB; Network Interfaces: Up to maximum allowable by hypervisor			
Cisco Application Centric Infrastructure Support	Application Performance Infrastructure Controller (APIC) with Enterprise Module			

Basic Networking
	IPBase	SEC	AppX	AX
BGP, OSPFv3, EIGRP, RIPv2, IS-IS, IPv6, VRF-Lite, NTP	Yes	Yes	Yes	Yes

High-Availability
	IPBase	SEC	AppX	AX
HSRP, VRRP, GLBP	Yes	Yes	Yes	Yes

Addressing
	IPBase	SEC	AppX	AX
802.1Q VLAN, EVC, NAT, DHCP, DNS, VXLAN	Yes	Yes	Yes	Yes

Basic Security
	IPBase	SEC	AppX	AX
ACL, AAA, RADIUS, TACACS+	Yes	Yes	Yes	Yes

Management
	IPBase	SEC	AppX	AX
IOS-XE CLI, SSH, Flexible NetFlow, SNMP, Embedded Event Manager, RESTful APIs	Yes	Yes	Yes	Yes

Multicast
	IPBase	SEC	AppX	AX
IGMP, PIM, QoS	Yes	Yes	Yes	Yes

Advanced Security
	IPBase	SEC	AppX	AX
Zone-based Firewall, IPSec VPN, EasyVPN, DMVPN, FlexVPN	No	Yes	Yes	Yes

Advanced Networking
	IPBase	SEC	AppX	AX
L2TPv3, BFD, MPLS, VRF	No	Yes	Yes	Yes

Application Experience
	IPBase	SEC	AppX	AX
WCCPv2, AppNav (traffic redirection to Cisco WAAS), NBAR2, Application Visibility & Control, IP SLA	No	No	Yes	Yes

Hybrid Cloud Connectivity
	IPBase	SEC	AppX	AX
LISP, OTV, VPLS, EoMPLS	No	No	Yes	Yes

Throughput
	IPBase	SEC	AppX	AX
10 Mbps	Yes	Yes	Yes	Yes
50 Mbps	Yes	Yes	Yes	Yes
100 Mbps	Yes	Yes	Yes	Yes
250 Mbps	Yes	Yes	Yes	Yes
500 Mbps	Yes	Yes	Yes	Yes
1 Gbps	Yes	Yes	Yes	Yes
2.5 Gbps	Yes	Yes	Yes	Yes
5 Gbps	Yes	Yes	No	No

System Requirements
	IPBase	SEC	AppX	AX
10 Mbps	1 vCPU, 2.5 GB RAM	1 vCPU, 2.5 GB RAM	1 vCPU, 2.5 GB RAM	1 vCPU, 2.5 GB RAM
50 Mbps	1 vCPU, 2.5 GB RAM	1 vCPU, 2.5 GB RAM	1 vCPU, 2.5 GB RAM	1 vCPU, 2.5 GB RAM
100 Mbps	1 vCPU, 2.5 GB RAM	1 vCPU, 2.5 GB RAM	1 vCPU, 2.5 GB RAM	1 vCPU, 2.5 GB RAM
250 Mbps	1 vCPU, 2.5 GB RAM	1 vCPU, 2.5 GB RAM	1 vCPU, 2.5 GB RAM	1 vCPU, 2.5 GB RAM
500 Mbps	1 vCPU, 2.5 GB RAM	1 vCPU, 2.5 GB RAM	1 vCPU, 2.5 GB RAM	1 vCPU, 2.5 GB RAM
1 Gbps	1 vCPU, 2.5 GB RAM	1 vCPU, 2.5 GB RAM	1 vCPU, 2.5 GB RAM	1 vCPU, 2.5 GB RAM
2.5 Gbps	2 vCPU, 2.5 GB RAM	2 vCPU, 2.5 GB RAM	2 vCPU, 2.5 GB RAM	2 vCPU, 2.5 GB RAM
5 Gbps	4 vCPU, 4 GB RAM	4 vCPU, 4 GB RAM	N/A	N/A

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