



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 ASR 1000 Series

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

Feature	819	850VAE	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 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 2 Gbps	
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)	2 (PVDM 4)	
USB Ports Type A	0	1	1	1 or 2	1	1	2	2	2	
Default/Max Flash	512 MB-1 GB (fixed)	56-1128 MB (fixed)	128 MB/256 MB (fixed)	256 MB (fixed)	4 GB/8 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	N/A	N/A	Yes, Internal RPS	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 double-wide	N/A	2 core single-wide 4 core single-wide 6 core double-wide 8 core double-wide	
Advanced Security										
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, Enhanced 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, Enhanced 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	Yes	Yes	Yes	Yes	Yes	
Intrusion Prevention	Yes	N/A	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Network Foundation Protection	ACL, FPM, Control Plan 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	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)									
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	Yes*	Yes*	Yes*	Yes*	
Cisco TrustSec	Security Group Tag Exchange Protocol (SGT), SGT over GETVPN, Port/L3 Interface/IP/Subnet-to-SGT mapping, SGT export in Flexible NetFlow	Yes (Requires Additional Subscription License)								
Unified Communication										
Enabled via Unified Communications License for Universal IOS Image. CME/RSST support through separate feature licenses										
Local Conferencing	N/A	N/A	N/A	N/A	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	Up to 5 on V models	N/A	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	Up to 5 on V models	N/A	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) (SIPH, 323 Sessions)	N/A	N/A	N/A	N/A	100	1000	3000	6000	6000	
Small 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	N/A	N/A	Up to 8 ports (FXS, FXO, E1M, BR)	Up to 12 ports (FXS, FXO, E1M, BR)	Up to 20 ports (FXS, FXO, E1M, BR)	Up to 20 ports (FXS, FXO, E1M, BR)	Up to 20 ports (FXS, FXO, E1M, BR)	
Routing and Multicast										
IPv4 Routing Protocols	RIP v1/v2, EIGRP, OSPF, BGP, PBR	RIP v1/v2, BGP	RIP v1/v2, EIGRP, OSPF, BGP, PBR	RIP v1/v2, EIGRP, OSPF, BGP, PBR	RIP v1/v2, EIGRP, OSPF, BGP, PBR, PIR	RIP v1/v2, EIGRP, OSPF, BGP, PBR, PIR	RIP v1/v2, EIGRP, OSPF, BGP, PBR, PIR	RIP v1/v2, EIGRP, OSPF, BGP, PBR, PIR	RIP v1/v2, EIGRP, OSPF, BGP, PBR, PIR	
Multicast Routing Protocols	PM-SM, mroute (static route), and MLD	N/A	PM-SM, mroute (static route), and MLD	PM-SM, mroute (static route), and MLD	PM-SM, mroute (static route), and MLD	PM-SM, mroute (static route), and MLD	PM-SM, mroute (static route), and MLD	PM-SM, mroute (static route), and MLD	PM-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	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										
Integrated 802.11 b/g/n Access Point	N/A	Yes	Yes	N/A	N/A	N/A	N/A	N/A	N/A	
Integrated 802.11 a/b/g/n Access Point	Yes	N/A	Yes	N/A	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										
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	Yes	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										
Maximum Switched Ethernet Ports	4	5	4	8	N/A	24	48	N/A	48	
Maximum Switched Ethernet LAN Ports with PoE	0	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	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										
Intelligent Path Control	PIR	N/A	PIR (Requires Advanced IP Services license)	PIR	PIR	PIR	PIR	PIR	PIR	
Network Contention Control	QoS, HQoS	QoS, HQoS (HQoS on 850VAE-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	
Alamni Connect	No	No	No	No	No	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 Transforming the Enterprise Network Edge

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 350 Gbps
Integrated WAN Ports	6 GE ports 2x10GE	6 GE ports	1 GE (Integrated Out of Band)	1 GE (Integrated Out of Band)	1 GE (Integrated Out of Band)
Embedded Services Processor (ESP)	Integrated 2.5-Gbps ESP Upgradeable via a software activated license to 20 Gbps	Integrated ESP Upgradeable via a software activated license from 5 Gbps to 10, 20, or 36 Gbps	ASR1000-ESP10 (single) 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-ESP 10 (single or dual) ASR1000-ESP10-N (single or dual). Scalable to 10 Gbps ASR1000-ESP20 (single or dual). Scalable to 20 Gbps ASR1000-ESP40 (single or dual). Scalable to 40 Gbps	ASR1000-ESP40 (single or dual). Scalable to 40 Gbps ASR1000-ESP100 (single or dual). Scalable to 100 Gbps ASR1000-ESP200 (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 (SPI) Card Slots	Integrated	Integrated	2	3	6
Shared Port Adapter (SPA) Slots	1	3	8	12	24
Network Interface Module (NIM)	1	0	0	0	0
Interface Support	FE, GE, 10GE, OC3 (POS/ATM), OC12 (POS/ATM), OC48 (POS), OC-192 (POS), channelized STM-1/OC3, (channelized +non-channelized)	OC12 (POS/ATM), OC48 (POS), OC-192 (POS), channelized STM-1/OC3, (channelized +non-channelized)	T3/DS0, T1/E1, Serial	T3/DS0, T1/E1, Serial	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 17 Mpps Up to 36 Gbps Depending on which performance upgrade license is utilized	Up to 15 or 23 or 59 Mpps Up to 10 or 20 or 40 Gbps-depending on ESP	Up to 23 or 59 Mpps Up to 10 or 20 or 40 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					
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 100Gbps (ESP10), 20 Gbps (ESP20), 40Gbps (ESP40) VRF aware FW and VRF aware NAT	Up to 100Gbps (ESP10) 20Gbps (ESP20), 40Gbps (ESP40) VRF aware FW and VRF aware NAT	UP TO 400Gbps (ESP40), 120Gbps (ESP100), 200Gbps (ESP200) VRF aware FW and VRF aware NAT
Total Firewall Session	2M	2M	1M (ESP10) 2M (ESP20 and ESP40)	1M (ESP10) 2M (ESP20 and ESP40) 6M (ESP100)	6M (ESP10 AND ESP200)
VPN services	FlexVPN, GRE + IPsec, VTI, FlexVPN, Easy VPN, Enhanced Easy VPN, Dynamic Multipoint VPN (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), 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), 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), 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), 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 (MIX 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 ESP 10/20/40) **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 (CPP), Control Plane Policing (CoPP), QoS, Role-based CLI Access, Source-based RTBH, uRPF, SSHv2	ACL, FPM, Control Plane Protection (CPP), Control Plane Policing (CoPP), QoS, Role-based CLI Access, Source-based RTBH, uRPF, SSHv2	ACL, FPM, Control Plane Protection (CPP), Control Plane Policing (CoPP), QoS, Role-based CLI Access, Source-based RTBH, uRPF, SSHv2	ACL, FPM, Control Plane Protection (CPP), Control Plane Policing (CoPP), QoS, Role-based CLI Access, Source-based RTBH, uRPF, SSHv2	ACL, FPM, Control Plane Protection (CPP), Control Plane Policing (CoPP), QoS, Role-based CLI Access, Source-based RTBH, uRPF, SSHv2
Cisco TrustSec	Security Group Tag Exchange Protocol (SGT), SGT over GETVPN, Port/L3 Interface/IP/Subnet-to-SGT mapping, SGT export in Flexible NetFlow	Security Group Tag Exchange Protocol (SGT), SGT over GETVPN, Port/L3 Interface/IP/Subnet-to-SGT mapping, SGT export in Flexible NetFlow	Security Group Tag Exchange Protocol (SGT), SGT over GETVPN, Port/L3 Interface/IP/Subnet-to-SGT mapping, SGT export in Flexible NetFlow	Security Group Tag Exchange Protocol (SGT), SGT over GETVPN, Port/L3 Interface/IP/Subnet-to-SGT mapping, SGT export in Flexible NetFlow	Security Group Tag Exchange Protocol (SGT), SGT over GETVPN, Port/L3 Interface/IP/Subnet-to-SGT mapping, SGT export in Flexible NetFlow
Unified Communication: Enabled instantly via CUBE License					
Cisco Unified Border Element (Enterprise Edition) - SIP Trunking (Managed)	5000	5000	16000+	16000+	N/A
Cisco Unified Border Element (SF Edition) - SIP Trunking (SF-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					
IPv4 Routing Protocols	RIP v1/v2, EIGRP, OSPF, BGP, PBR				
Multicast Routing Protocols	PM-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					
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					
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 bandwidth with priority propagation	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 bandwidth with priority propagation	3-level hierarchical QoS (e.g. on GRE tunnels), 256 Class-maps per policy, 4000 unique policy maps, support for 232,000 queues, allows all queues to have a minimum, maximum, and excess bandwidth with priority propagation	3-level hierarchical QoS (e.g. on GRE tunnels), 256 Class-maps per policy, 4000 unique policy maps, support for 232,000 queues, allows all queues to have a minimum, maximum, and excess bandwidth 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 bandwidth with priority propagation
Application Services					
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				

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 ESX 5.0 and 5.1, Red Hat Enterprise Linux (RHEL) 6.3, Citrix XenServer 6.1, Microsoft Hyper-V (