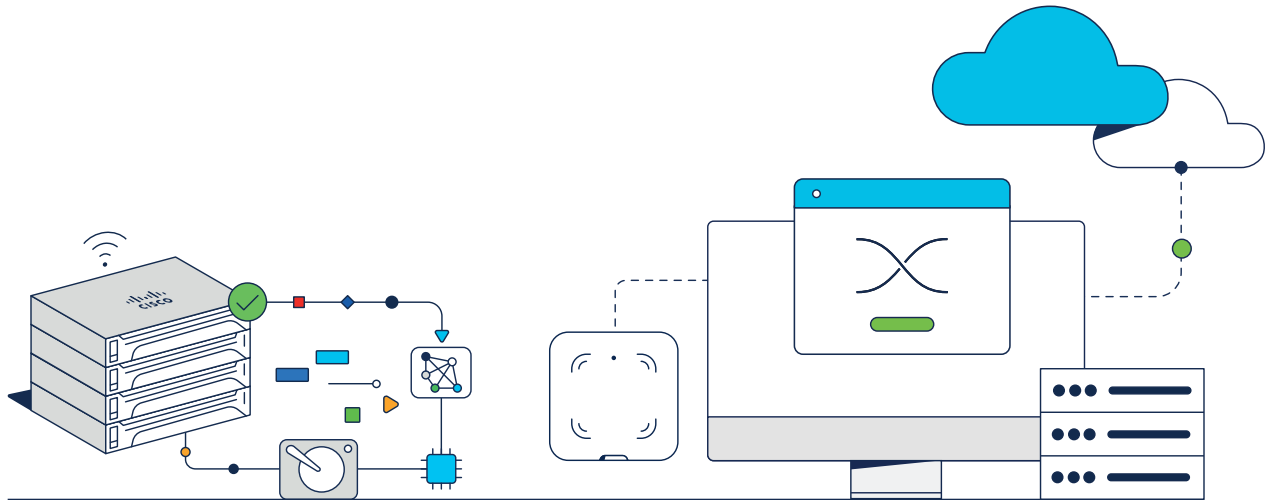# Cisco 8000 Series Secure Routers
WAN and Routing License Feature Matrices

Cisco WAN Essentials and Advantage Feature Set

		WAN Essentials	WAN Advantage
License type		Term-based Software Subscription	
Management option - Cisco Catalyst SD-WAN Manager[1]		Customer/Partner hosted and managed (Cloud/On-Prem)	

		WAN Essentials	WAN Advantage
Topology and Connectivity	Topology: Flexible topology including hub/spoke, full mesh and partial mesh Connectivity: Ethernet, DSL, 5G/4G LTE, Satelite, MLPPP, PPPoE, IPoE, Etherchannel	✓ VPNs limited to 10 VPN + 1 Management	✓
Layer 2 and Layer 3 Routing	Static Routing, Dynamic Routing, Routing Protocol Redistribution, BFD, Path MTU, Overlay Management Protocol, Data Policy, DHCP, End-point Tracker, Enhanced Application Aware Routing, Enhanced Policy-based Routing, Custom Application Aware Routing, EVPN, L2VPN, NAT, NAT64, QoS, Fragmentation and Reassmbly, Dual-stack support for LAN and WAN connectivity, VRF (VPN)	✓	✓
Services	Software Defined Application Visibility and Control (SD-AVC), Flexible Netflow, DNS (including local bypass), Application Quality-of-Experience (AppQoE: Forward Error Correction, Packet Duplication, TCP WAN Optimization)	✓	✓
Security	ACL, L3-L7 Firewall, Custom Application for Security Policy, FW Policy version control and rollback, Cisco Secure Services Edge (SSE) Integration with Cisco Secure Access, MACsec, Service Chaining, Roaming User Protection	✓	✓
Multicloud and SaaS	Cloud OnRamp for Multicloud (AWS, Azure, GCP) – Site to Cloud connectivity, Cloud OnRamp for SaaS, Monitoring capabilities, SD-WAN Application Intelligence Engine (SAIE), Service Chaining	✓	✓
High Availability	TLOC Extension, VRRP, HSRP	✓	✓
Network Management	On-prem deployment, Role-Based Access Control (RBAC), License Management, Application Catalog, Compliance Dashboard, Certificate Management, Configuration Catalog, Zero-touch provisioning and onboarding, IoT app life cycle management and monitoring (cybervision, SEA, 3rd party app), High Availability/Disaster Recovery, SSH, SNMP, NTP, Ping, Traceroute, IP Name Server, Applications Health Monitoring, Network Monitoring Dashboards, Report Generation, Network Wide Path Insights (NWPI), On Demand Troubleshooting, Underlay Measurement and Tracing Services, Sustainability and Energy Management, Topology Visualization, TACACS, Cisco ThousandEyes	✓	✓
Integration	Identity Services Engine (ISE), RADIUS, Single Sign-On (SSO) support with SAML2.0, eSim Cellular Providers, Common Policy for Multi-domain	✓	✓
Advanced Topology	Multi Region Fabric (MRF), Multi-tenancy Edge, SD-WAN Remote Access (SD-WAN RA)		✓
Advanced Layer 2 and Layer 3 Routing	Per-VPN QoS, Adaptive QoS Support, Dynamic On-demand Tunnel, Multicast, App-aware Routing Policy for Multicast		✓
Advanced Services	Advance Application Quality-of-Experience: Multiple Service Nodes, Data Redundancy Elimination (DRE), SSL Proxy, Stateful Interchassis High Availability (B2B HA for NAT, Firewall)		✓
Advanced Multicloud and SaaS	Cloud OnRamp for SaaS with Cisco Catalyst SD-WAN Analytics[2] and Telemetry, M365 Informed Network Routing, Webex telemetry, Cloud OnRamp for Multicloud – Site to Site and Cloud to Cloud connectivity via mid-mile with Cloud Interconnect/Cloud Backbone, Service Chaining, Service Creation/Discovery		✓
Analytics and AIOPs	Data visualization upto 12 weeks for dashboards, Predictive Path Recommendations, Bandwidth Forecasting, Anomaly Detection, Advisories (Security Advisory, Field notices), Firewall Logging on Manager (log retention upto 30 days)		✓

Per-Device Management Add-Ons

Cloud[2]	Cisco Hosted Cloud Management - Catalyst SD-WAN Manager/Orchestrator/Controller	Add-on to WAN Ess/WAN Adv
Cloud Pro[2]	Cisco Hosted Advanced Cloud Management for version control and compliance fulfillment - Catalyst SD-WAN Manager/Orchestrator/Controller	Add-on to WAN Ess/WAN Adv

Per-Device Feature Add-ons

Security - Threat	IPS/IDS with support for Custom Signatures, Whitelisting, Editable IPS Profiles	Add-on to WAN Ess/WAN Adv
Security - Malware Defense	File Reputation Check, File Analysis	Add-on to WAN Ess/WAN Adv
Security - URL Filtering	Web Category and Reputation, Whitelisting, Custom Block Messages	Add-on to WAN Ess/WAN Adv

[1] The Cisco WAN Essentials and WAN Advantage Subscription includes the right to use on-premise Catalyst SD-WAN Manager/Orchestrator/Controller. For Cisco Hosted cloud control components, additional Management Add-on licenses are required.

[2] Cisco Catalyst SD-WAN Analytics, Cisco Catalyst SD-WAN hosted in the Cisco cloud environment, cloud-delivered Cisco Catalyst SD-WAN, and other cloud features cannot be used by customers headquartered or mainly based in Mainland China.

Cisco OS Essentials and Routing Advantage Feature Set

	OS Essentials	Routing Advantage
License type	Embedded Perpetual Software	Term-based Software Subscription
Management Option	CLI, Web UI	CLI, Web UI

		OS Essentials	Routing Advantage
Connectivity	Ethernet, DSL, 5G/4G LTE, Satelite, MLPPP, PPPoE, IPoE, Etherchannel	✓	✓
Layer 2 and Layer 3 Routing	BDI, PPPoE, PPPoA, L2TPv2, ISDN BRI, X.25 and XOT, RIP, OSPF, BGP, EIGRP, IGRP, IS-IS, ODR,PPP,MLP, TCP, SCTP, BFD, LACP, PAgP, EtherChannel, LLDP, 802.1Q, IPSLA, TCP connect, HTTP, FTP, DHCP, QoS, HQoS, 802.1P, PBR, ARP, NAT/PAT, Application Layer Gateway (ALG), URPF, GRE, IPv6 over IPv4 and IPv4 over IPv6 Tunnelling, EVN, VRF-Lite, VRF/Multi-VRF, Basic SRv6 Basic Multicast: Bi-Di PIM, IGMP, Protocol Independent Multicast (PIM), CGMP, AutoRP, Bootstrap Router (BSR), mroute, MLD (v1, v2), extending SSM support (PIM-SSM, IGMPv3 with SSM), SSM-Mapping, Multicast Source Discovery Protocol (MSDP)	✓	✓
Carrier Ethernet	CFM-802.1ag, OAM – 802.3ah, E-OAM, E-CFM	✓	✓
Services	Flexible NetFlow, IPFIX, perfMon, FPM, DNS, DDNS	✓	✓
Security	PKI, CHAP and PAP, Certificate Authority, L3/L4 Firewall, ACL, Trustworthy Solutions, 802.1X, SHA-1, SHA-2, MD5	✓	✓
Encryption and VPN	IPsec for SSE OnRamp (Limited up to 250 Mbps)	✓	✓
High Availability	HSRP, VRRP, GLBP	✓	✓
Network Management	TR-069, TR069-CWMP, NTPv4, CDP, CoPP, SPAN, RSPAN, NETCONF/YANG, PnP/ZTP, EEM, RESTCONF, AAA, GNMI, gRPC, TACACS/TACACS+	✓	✓
Integration	RADIUS	✓	✓
Advanced Layer 2 and Layer 3 Routing	Basic CLNS functionality, Radio-Aware Routing (RAR, PPPoE based-RFC 5578), Mobile IP, Proxy Mobile IP (PMIP), MPLS L2 and L3 VPN, L2 VPN Pseudowire (PW) (EoMPLS), AToM, MPLS TE, LDP, VPLS, H-VPLS, EVPN, SR-MPLS and SRv6 Traffic Engineering, SR Flex Algo, SRv6 L3VPN, SR-MPLS L2 and L3 VPN, ISATAP tunnels, 6RD tunnels, L2TPv3, VPDN, L2 forwarding, EoGRE, OTV, VRF Aware Services Infrastructure (VASI), VXLAN, LISP Advance Multicast: Pragmatic General Multicast (PGM), Router Group Management Protocol (RGMP), Multicast Service Reflection, Multicast VPN, Ingress Multicast Replication over SRv6		✓
Advanced Carrier Ethernet	ELMI, EVC, Ethernet Flow Point		✓
Advanced Services	Carrier Grade NAT (CGNAT), NBAR2, Software Defined Application Visibility and Control (SD-AVC), Broadband Network Gateway (LAC, LNS), Intelligent Services Gateway (ISG), Intelligent Wireless Access Gateway (iWAG), mDNS		✓
Advanced Security	WAN MACsec, LAN MACsec, Cisco TrustSec (SGT, SGACL, SGX), Encrypted Traffic Analysis (ETA)		✓
Advanced Encryption and VPN	DMVPN, GET VPN, FlexVPN, P2P IPsec (unrestricted)		✓
Advanced High Availability	Stateful Interchassis High Availability (B2B HA for NAT, Firewall), Object Tracking		✓
Advanced Network Management	UDLR, Guest Shell, Application Hosting, ERSPAN, VoIP (UDP jitter, RTP, H323, MOS), video ops, TWAMP, monitor, schedule, disc (for LSP), Y.1731, MPLS OAM, EPC, SMU		✓

Per-Device Management Add-Ons[1]

On-Prem Catalyst Center	Device Management, Monitoring and Visibility, Configuration Management, Software Image Management	Add-on to Routing Advantage

[1] The Cisco Routing Advantage Subscription requires additional On-Prem Management Add-on Licenses to use on-premise Catalyst Center.