



Cisco DNA Software SD-WAN and Routing Matrices



Cisco DNA Software for SD-WAN Feature Matrix

	Cisco DNA Essentials	Cisco DNA Advantage
License type	3-, 5-, or 7-year term subscription	Includes Cisco DNA Essentials 3-, 5-, or 7-year term subscription
Management options	CLI, Web UI Cisco Catalyst SD-WAN Manager ¹	CLI, Web UI Cisco Catalyst SD-WAN Manager ¹

Cisco DNA for SD-WAN subscription features	Cisco DNA Essentials	Cisco DNA Advantage																											
Connectivity and management Cloud or on-premises management, flexible topology including hub/spoke, full mesh and partial mesh, app- and SLA-based routing policy, VNF lifecycle management, DSL, 4G LTE, and multilink router interfaces, NTP client, zero-touch provisioning and onboarding, global and site topology.	VPNs limited to 10 user + 1 mgmt	✓																											
Cisco Catalyst SD-WAN Layer 2 and Layer 3 routing – general Static and dynamic routing (BGP, OSPF), routing protocol redistribution (EIGRP, OSPF, BGP), EIGRP (service side), route maps, BFD PMTU, CoS marking (802.1P), static and service side NAT, NAT pool support for DIA, NAT using loopback interface address, HQoS, per-tunnel QoS, Ethernet subinterface QoS, WAN loopback support, OMP redistribution, service VPN redistribution, mapping BGP communities to OMP tags, match and set communities during BGP to OMP redistribution (localized and centralized policy), secondary IP address support on SVI (interface VLAN), TLOC extension, DHCP options support, BFD for BGP/OSPF/EIGRP – CLI template, NTP server support, DIA Tracker: Interface tracker for DIA, ability to track static route on service VPN, per-class/DSCP BFD for AAR, ACL matching ICMP, enhanced policy-based routing (CLI template), jumbo frames (1GE interface), custom app support (for application aware routing), SD-AVC, flexible Netflow, EVPN, MACSec Support, automated service chaining and insertion.	✓	✓																											
Cisco Catalyst SD-WAN Layer 2 and Layer 3 routing – IPv6 Dual stack support (for transport), inbound and outbound filtering, support for NAT64 devices (DIA), dual-stack service-side interface support (Gigabit, subinterface, SVI, loopback), unicast addressing (link-local, unique-local, and global), anycast addressing, QoS, QoS policer, QoS DSCP rewrite (inbound and outbound), IP name server, ICMP redirects, VRRP, DHCP relay agent, SSH, traceroute, SNMP logging server, automated service chaining and insertion.	✓	✓																											
Multicloud and SaaS Cloud OnRamp for Multicloud (GCP, AWS, Azure) – Site to Cloud connectivity, Cloud OnRamp for SaaS, monitoring capabilities for Multicloud and SaaS via Cisco Catalyst SD-WAN Manager, SD-WAN Application Intelligence Engine (SAIE), automated service chaining and insertion.	✓	✓																											
SSE Connectivity (IPSec) 3 rd party cloud security providers, Cisco Catalyst SD-WAN auto-register and IPsec auto-tunnel to Cisco Umbrella®, Cisco Umbrella DNS monitoring (visibility only), Cisco Umbrella app discovery.	✓	✓																											
NGFW Stack Cisco AMP, geo location-based filtering, interface zone support, high speed logging, URL filtering, TLS/SSL proxy support with Cisco Catalyst SD-WAN, FQDN support, enterprise certificate support, ACL, pairwise key support for IPsec, SSH login with key, syslog over TLS, enterprise firewall with Talos® powered IPS and application controls, RADIUS, Micro and Micro Segmentation (ICE/SGT), Cisco Secure Malware Analytics support ⁴ .	✓	✓																											
Cisco Catalyst SD-WAN services DNS (including local bypass), basic path optimization with FEC and packet duplication, AppQoE: TCP optimization, ZBFW – multiple prefix list, rule-set support, microtenancy: RBAC by VPN, policy based routing to SIG, weighted load-balancing for multiple SIG tunnels.	✓	✓																											
Essential Voice/UC features (managed via Cisco Catalyst Manager) CUBE (IP to IP)	✓	✓																											
Software Support Service (SWSS) Software support services that also offer license portability and ongoing innovation in the subscription software stack, including 24-hour TAC support.	✓ ²	✓ ²																											
Premium Support Services Success Tracks and/or Solution Support.	Optional ²	Optional ²																											
Advanced Cisco Catalyst SD-WAN Layer 2 and Layer 3 routing – general Per-VPN QoS, adaptive QOS support, dynamic on-demand tunnel support, Hierarchical Cisco Catalyst SD-WAN, automated service chaining and insertion – service creation/discovery.		✓																											
Cisco Catalyst SD-WAN Layer 2 and Layer 3 Multicast routing – IPv4 IGMPv3, PIM SSM, auto RP, app-aware routing policy support for multicast.		✓																											
Advanced Cisco Catalyst SD-WAN services Cisco Catalyst SD-WAN Manager (design, deploy, monitor) for virtualized platforms, AppQoE – multiple service nodes, DRE and LZ (including SSL proxy).		✓																											
Advanced Multicloud and SaaS, Analytics, and Visibility Cloud OnRamp for SaaS with Cisco Catalyst SD-WAN Analytics ³ and telemetry, Cloud OnRamp for Multicloud – Site to Site and Cloud to Cloud connectivity via mid-mile with Cloud Interconnect/Cloud Backbone, M365 Informed Network Routing, Webex telemetry, automated service chaining and insertion – service creation/discovery, Cloud OnRamp for Colocation, Cisco Catalyst SD-WAN Analytics ³ , Predictive Path Recommendations (powered by ThousandEyes WAN Insights).		✓																											
Cross-domain innovations Integrated border for campus (SD-Access), integration with Cisco ACI® for application SLA.		✓																											
Advanced Voice/UC features (Managed via Cisco Catalyst Manager) Non-secure TDM/PSTN SIP trunk with digital cards (T1/E1) and analog cards (FXO/FXS), non-secure DSP farm services (media termination point, transcoder and conference bridge), SIP SRST ⁴ .		✓																											
Roaming User Protection Cisco AnyConnect® protects your employees even when they are off the VPN. Enjoy seamless protection against malware, phishing, and command-and-control callbacks wherever your users go.		✓																											
<div>Cisco DNA for SD-WAN perpetual features</div> <table><thead><tr><th></th><th>Network Essentials Perpetual licenses with Cisco Catalyst Manager and Cisco DNA Essentials, limited to 10 users and 1 mgmt</th><th>Network Advantage Perpetual licenses with Cisco Catalyst Manager and Cisco DNA Advantage, limited to 10 users and 1 mgmt</th></tr></thead><tbody><tr><td>Basic Network Essentials</td><td>✓</td><td>✓</td></tr><tr><td>Advanced Network Essentials</td><td>✓</td><td>✓</td></tr><tr><td>Basic Network Advantage</td><td>✓</td><td>✓</td></tr><tr><td>Advanced Network Advantage</td><td>✓</td><td>✓</td></tr><tr><td>Basic Network Essentials + Network Advantage</td><td>✓</td><td>✓</td></tr><tr><td>Advanced Network Essentials + Network Advantage</td><td>✓</td><td>✓</td></tr><tr><td>Basic Network Advantage + Network Essentials</td><td>✓</td><td>✓</td></tr><tr><td>Advanced Network Advantage + Network Essentials</td><td>✓</td><td>✓</td></tr></tbody></table>				Network Essentials Perpetual licenses with Cisco Catalyst Manager and Cisco DNA Essentials, limited to 10 users and 1 mgmt	Network Advantage Perpetual licenses with Cisco Catalyst Manager and Cisco DNA Advantage, limited to 10 users and 1 mgmt	Basic Network Essentials	✓	✓	Advanced Network Essentials	✓	✓	Basic Network Advantage	✓	✓	Advanced Network Advantage	✓	✓	Basic Network Essentials + Network Advantage	✓	✓	Advanced Network Essentials + Network Advantage	✓	✓	Basic Network Advantage + Network Essentials	✓	✓	Advanced Network Advantage + Network Essentials	✓	✓
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Cisco Catalyst SD-WAN functionality is a pure subscription-based product offering. Upon expiration of your Cisco DNA Subscription for SD-WAN, you are no longer licensed to access the Cisco Catalyst SD-WAN feature set.

Repurposing eligible hardware platforms from Cisco Catalyst SD-WAN to traditional routing deployments is possible. Network Essentials and Network Advantage perpetual licenses are included on eligible hardware platforms with every Cisco DNA for SD-WAN subscription. The Cisco vEdge router family is not compatible with Network Essentials and Network Advantage, and therefore is not eligible for Network Essentials and Network Advantage licenses.

For a full listing of the traditional routing capabilities of the Network Essentials and Network Advantage perpetual licenses, please see the Cisco DNA for Routing perpetual license feature matrix below.

¹ The Cisco Catalyst Cloud SD-WAN subscription provides the right to use SD-WAN solution only with the cloud controller. The Cisco Catalyst on-premise SD-WAN subscription provides the right to use SD-WAN solution only with the on-premise controller.

² With Cisco DNA software licenses, customers receive embedded SWSS, which covers 24x7x365 Cisco Technical Assistance Center (TAC) support and software release updates. This is valid only for the Cisco DNA software subscription stacks (Cisco DNA Essentials and Advantage). Embedded SWSS DOES NOT cover the Network Stack.

For full hardware support, including the network stack (Network Essentials/Advantage), customers are required to additionally purchase either Smart Net Total Care on the hardware itself, or Cisco’s premium support services: Solution Support and/or Success Tracks. These premium services must be purchased on both your Cisco DNA software license and the hardware.

³ 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.

⁴ Requires purchase of additional licenses.

Cisco DNA Software for Routing Feature Matrix

	Catalyst Routing Essentials	Cisco DNA Essentials	Cisco DNA Advantage
Subscription license	7-year term only	3-, 5-, or 7-year	3-, 5-, or 7-year
Network stack	Term based	Perpetual	Perpetual
Management options	CLI, Web UI, Cisco Catalyst SD-WAN Manager, Cisco Catalyst Center	CLI, Web UI, Cisco Catalyst SD-WAN Manager, Cisco Catalyst Center	CLI, Web UI, Cisco Catalyst SD-WAN Manager, Cisco Catalyst Center
Cisco Catalyst SD-WAN Manager ⁵ (SD-Routing)	On-Prem	On-Prem/Cloud	On-Prem/Cloud
Cisco Catalyst Center	On-Prem	On-Prem	On-Prem

Platform based routing features (Most features included with the perpetual network stack)	Catalyst Routing Essentials	Cisco DNA Essentials	Cisco DNA Advantage
Routing and protocols RIP, OSPF, BGP, EIGRP, IGRP, IS-IS, On-Demand Routing (ODR), Point-to-Point Protocol (PPP), Multi-Link PPP (MLP), TR-069, TR069-CWMP, TCP (ECN, Window scaling, MSS) Stream Control Transmission Protocol (SCTP).	✓	✓	✓
Link capabilities LACP, PAgP, EtherChannel, LLDP, 802.1Q.	✓	✓	✓
High availability HSRP, FHRP, GLBP (global load balancing).	✓	✓	✓
Essential application experience IPSLA initiator/responder, echo, jitter, path (ICMP, UDP, and multicast), TCP connect, HTTP, FTP, DHCP, MQC including classification, policing, re-marking, scheduling; HQoS, NBAR2 (standard protocol packs).	✓	✓	✓
System control capabilities DNS, Dynamic DNS, NTPv4, Cisco Discovery Protocol, Control Plane Policing (CoPP).	✓	✓	✓
Essential traffic management capabilities NetFlow, Flexible NetFlow (FNF), IPFIX, performance monitoring, Flexible Packet Matching (FPM), Policy-Based Routing (PBR), ACL, ARP, DHCP, BDI, NAT, PAT – IPv4/v6, Reverse Path Forwarding (URPF), 802.1P.	✓	✓	✓
Traffic analytics capabilities Switch Port Analyzer (SPAN).	✓	✓	✓
Programmability and device management NETCONF/YANG support, Zero Touch Support (PnP/ZTP), EEM Support, RESTCONF, TACACS+, AAA, GNMI, gRPC.	✓	✓	✓
Secure authentication Public Key Infrastructure (PKI), Challenge Handshake (CHAP) and Password Authentication (PAP), Certificate Authority (CA).	✓	✓	✓
Perimeter security Zone-based firewall, ACL.	✓	✓	✓
Secure infrastructure IPsec (point to point).	✓	✓	✓
MACsec support MACsec Key Agreement Protocol, LAN MACsec (128-bit), WAN MACSec (125-/256-bit).	✓	✓	✓
Platform integrity Trustworthy system.	✓	✓	✓
Essential multicast features Bi-Di PIM, IGMP, Protocol Independent Multicast (PIM), mVPN, CGMP, AutoRP, Bootstrap Router (BSR), mroute, MLD (v1, v2), extending SSM support (PIM-SSM, IGMPv3 with SSM), SSM-Mapping, Multicast Source Discovery Protocol (MSDP).	✓	✓	✓
Essential broadband CPE support PPP over Ethernet (PPPoE), PPPoA (PPP over ATM) for DSL support, L2TPv2.	✓	✓	✓
Essential tunneling mechanisms GRE tunnel, IPv6 over v4 and IPv4 over v6 tunnels, per-tunnel QoS.	✓	✓	✓
Network segmentation Easy Virtual Network (EVN), vRF-Lite, Multi-VRF, VRF support, Cisco TrustSec® (SGT, SGACL, SGX).	✓	✓	✓
802.1X/AAA support 802.1X feature support, RADIUS integration, TACACS/TACACS+ support, SHA-1, SHA-2, MD5.	✓	✓	✓
Essential routing and traffic management capabilities Connectivity Fault Management (CFM-802.1ag), Operations and Admin Management (OAM - 802.3ah), E-OAM (op, admin, maint), E-CFM (connectivity fault management).	✓	✓	✓
Threat protection IPS/IDS, Cisco AMP ⁴ , URL Filtering ⁴ .		✓	✓
Secure infrastructure (VPN) DMVPN, GET VPN, FlexVPN.		✓ ¹	✓ ¹
Essential Voice/UC features (managed via Cisco Catalyst Center) CUBE (IP to IP).		✓	✓
Advanced routing and traffic management capabilities Carrier grade NAT ² , Bidirectional Forwarding (BFD).		✓	✓
Operational/management router capabilities Unidirectional Link Routing (UDLR), guest shell support, application hosting (app hosting on containers).			✓
High availability Stateful interchassis redundancy.			✓
Traffic analytics capabilities Encapsulated Remote SPAN (ERSPAN).			✓
Advanced application experience Application Layer Gateway (ALG), NBAR2 (standard and custom protocol packs), Application Visibility and Control (SD-AVC).			✓
Legacy protocol support ISDN BRI, X.25 and XOT support, basic CLNS functionality.			✓
Mobile routing Radio-Aware Routing (RAR, PPPoE based-RFC 5578), mobile IP, Proxy Mobile IP (PMIP), network positioning system.			✓
Advanced multicast features Multicast Segment Routing, Pragmatic General Multicast (PGM), Router Group Management Protocol (RGMP), multicast service reflection, multicast VPN.			✓
Advanced metro and carrier Ethernet support Ethernet local management Interface (ELMI), Ethernet Virtual Circuit (EVC), Ethernet flow point.			✓
Advanced MPLS and VRF support MPLS Layer 2 and Layer 3 VPN, Layer 2 VPN Pseudowire (PW), Ethernet over MPLS (EoMPLS), Any Transport over MPLS (AToM), MPLS Traffic Engineering (TE), Label Distribution Protocol (LDP), Virtual Private LAN Services (VPLS, H-VPLS), EVPN, Segment Routing.			✓
Advanced tunneling mechanisms ISATAP tunnels, 6RD tunnels, Layer 2 Tunnel Protocol v3 (L2TPv3) ³ , LAC ³ , LNS ³ , Layer 2 Protocol Tunneling (L2PT), Virtual Private Data Networks (VPDN) ³ , Layer 2 forwarding, Ethernet over GRE (EoGRE) ³ .			✓
Advanced IP service-level analysis VoIP (UDP jitter, RTP, H323, MOS), video ops, TWAMP, monitor, schedule, disc (for LSP), Y.1731, MPLS OAM.			✓
Content routing Web Cache Routing Protocol (WCCP), object tracking.			✓
Data center interconnect features Overlay Transport Virtualization (OTV), VRF-Aware Software Infrastructure (VASI), VXLAN.			✓
Advanced Voice/UC features (managed via Cisco Catalyst Center) Analog cards (FXO/FXS/BRI/E&M) and digital cards (E1/T1), call control (SIP, SIP line “WxC and CUCM”, STCAPP, MGCP), DSP farm services (media termination point, transcoder and conference), SRST ⁴ , CME ² .			✓
Cisco innovation Analog cards (FXO/FXS/BRI/E&M) and digital cards (E1/T1), call control (SIP, SIP line “WxC and CUCM”, STCAPP, MGCP), DSP farm services (media termination point, transcoder and conference), SRST ⁴ , CME ² .			✓

¹ No SSL VPN support except on Catalyst 8000V Edge Software.

² Requires purchase of additional licenses.

³ In a BNG or iWAG deployment, these features require a separate and distinct Broadband Feature License apart from the Cisco DNA subscription license.

⁴ Supported only with SD-Routing

⁵ The Cisco Catalyst Cloud SD-WAN Manager subscription provides the right to use the solution only with the cloud controller. The Cisco Catalyst on-premise SD-WAN Manager subscription provides the right to use the solution only with the on-premise controller.

Cisco Catalyst SD-WAN Manager (SD-Routing) features (All features require an active Catalyst Routing or Cisco DNA subscription)	Catalyst Routing Essentials	Cisco DNA Essentials	Cisco DNA Advantage
Device management Zero touch provisioning through Cisco Plug and play, guided workflow for quick connect, Inventory, discovery, topology, software image management, site management, network settings, credential update, integrity verification, predefined reports.	✓	✓	✓
Monitoring - Network Dashboards, overall health, network health, site health, topology, pre-canned reports, troubleshooting tools such as ping, traceroute, speed test, packet capture and Network-wide Path Insights (NWPi).	✓	✓	✓
Monitoring - Applications Application visibility (name, throughput).	✓	✓	✓
Configuration management Guided workflows for configuration management and CLI templates.	✓	✓	✓
Software Support Service (SWSS) Software support services that also offer license portability and ongoing innovation in the subscription software stack, including 24-hour TAC support.	✓ ¹	✓ ¹	✓ ¹
Premium Support Services Success Tracks and/or Solution Support.	Optional ¹	Optional ¹	Optional ¹
Advanced monitoring and management Guided workflow for NGFW (on-box security), Configuration support for DMVPN, GET VPN, FlexVPN.		✓	✓
Cloud OnRamp BranchConnect for AWS, BranchConnect for Azure.			✓
Security Management for advanced NGFW and Cloud security.			✓

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Cisco Catalyst Center features (All features require an active Catalyst Routing or Cisco DNA subscription)	Catalyst Routing Essentials	Cisco DNA Essentials	Cisco DNA Advantage
Essential Cisco DNA automation – Device management Inventory, discovery, topology, software image management, site management, network settings, credential update, integrity verification, template programmer, predefined reports, Plug and Play application.	✓	✓	✓
Cisco DNA assurance – Management and analytics Dashboards, overall health, network health, client health, topology, pre-canned reports, custom thresholds.	✓	✓	✓
Essential Cisco DNA assurance – Routing and VNF management Basic router monitoring, basic WAAS monitoring, basic ENFV monitoring (ENCS, UCSE, vRouter, vWAAS).	✓	✓	✓
Essential Cisco DNA assurance Application visibility (name, throughput).	✓	✓	✓
Software Support Service (SWSS) Software support services that also offer license portability and ongoing innovation in the subscription software stack, including 24-hour TAC support.	✓ ¹	✓ ¹	✓ ¹
Premium Support Services Success Tracks and/or Solution Support.	Optional ¹	Optional ¹	Optional ¹
Essential Cisco DNA automation – Routing and VNF management Router deployment: day-0 and day-2 changes, NFV provisioning on ENCS and Cisco UCS® E-Series, Cisco VNF – ISRv, vASA.		✓	✓
Advanced Cisco DNA automation – Device management Advanced Cisco DNA Automation – device management.			✓
Advanced Cisco DNA automation – Routing and VNF management IWAN application, security at the edge, VNF management (third party and applications).			✓
Advanced Cisco DNA assurance – Routing and VNF management 360 pages, health score, time travel, targeted insights, neighbor topology, path trace, KPIs, baselining, trends, custom reports (AppX, SD–Access, Wi-Fi KPIs, etc.), compliance, global insights integrations (Cisco® Unified Communications Manager, Skype for Business, ETA/SW, Tableau, etc.), router 360, ENFV 360, router underlay insights, ENFV insights.			✓
Advanced Cisco DNA assurance – Application App health (router, switch, NAM based), app 360, app performance in client/device 360s (jitter, loss, latency).			✓

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