

Understanding Cisco DNA Software

Solutions and Use Cases by Tier

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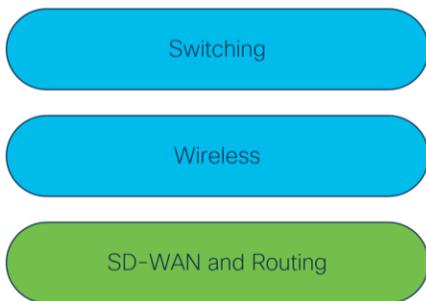
Description: Cisco DNA software subscriptions are available for switching, wireless, and SD-WAN and routing. This guide helps you choose the tier that is right for you, based on your use cases and business needs.

What is Cisco DNA Software?



Cisco DNA Software powers the [Cisco® Networking](#) solution. Cisco Networking is your team’s bridge to an intent-based network. It is an open, extensible, software-driven portfolio that helps accelerate and simplify your enterprise network operations while lowering costs and reducing risk. Only Cisco provides a single-network fabric that is powered by deep intelligence and integrated security to deliver automation and assurance across your entire network organization at scale. Cisco Networking gives IT time back from time-consuming, repetitive network configuration tasks so you can focus on the innovation your business needs. The latest innovations in Cisco Networking include new software capabilities that deliver greater intelligence and security through Cisco DNA subscription software and an architectural approach that delivers end-to-end visibility, automation, and insights.

Cisco DNA Software is available in three suites



The tiers in all three suites have a similar nested structure.



Network and security capabilities plus management functionality are enhanced in each successive tier.

Figure 1. Cisco DNA Software is available in three suites, with multiple tiers in each suite

Switching: Picking a tier



Cisco DNA Software for Switching is available in two tiers:

Cisco DNA Essentials

Cisco DNA Advantage

Let's dive into the use cases for each tier so you can determine what's right for you. For a full list of features, see the [Switching Feature Matrix](#).

Cisco DNA Essentials

Cisco DNA Essentials enables the essential capabilities to manage your network, including networking automation. For instance, Network Plug and Play automates the process of installing or upgrading software images and installing configuration files on Cisco devices that are deployed in a network for the first time. It reduces the manual tasks required to scale the network's capacity. Software Image Management (SWIM) automates software upgrades and controls the consistency of image versions. The Cisco Local Area Bonjour protocol is a zero-configuration solution that simplifies network configuration and enables communication between connected devices, services, and applications. Using Bonjour, you can discover and use shared services with minimal intervention and configuration. Cisco IOS® Embedded Event Manager (EEM) is a powerful and flexible subsystem that provides real-time network event detection and onboard automation. It gives you the ability to adapt the behavior of your network devices to align with your business needs.

Network Site Design and Device Provisioning allows you to design your wired network for proper coverage and maximum throughput. You can provision wired network appliances with the proper settings to maximize performance.

Another great feature in Essentials is Full Flexible NetFlow, which allows you to get the pulse of your network by collecting statistics for each network transaction. Your devices can generate anonymized information about packet movements in the network (source and destination, size, etc.) Full Flexible NetFlow adds a few more pieces of data to it, allowing different monitoring and troubleshooting tools to be even more precise. Full Flexible NetFlow is a data source that, when analyzed, can prevent network downtime and security breaches.

An important aspect of effective network management is visibility—it's impossible to manage what you can't see. With Cisco DNA Essentials, you get access to a health dashboard that gives a high-level overview of the health of every network device and client on the network, wired or wireless, Cisco or Meraki®.

It's important to note that some of these features are enhanced through Cisco DNA Center, our powerful network controller and management dashboard.

What if you do not have a Cisco DNA Center appliance? You can still take advantage of the features that do not require the appliance:

Full Flexible NetFlow	As described earlier, Cisco devices employ open standard NetFlow communication as the “pulse” of your network infrastructure. NetFlow telemetry can be sent to third-party management systems and AIOps platforms for detailed behavioral management and performance analytics.
Cisco IOS Embedded Event Manager	This provides the flexibility to adapt the behavior of network devices in real time to meet business needs.
Software Support Service (SWSS)	This provides all updates and upgrades for the device software which protects investment and brings new device functionality. SWSS also entitles you to 24-hour Cisco TAC support.

Figure 2.
Cisco DNA Essentials features that do not require the appliance

Cisco DNA Advantage

Cisco DNA Advantage is our premium tier that gives you the advantage of the latest innovative features. All the features mentioned in the Cisco DNA Essentials section are included in Advantage. In addition, Cisco DNA Advantage includes LAN automation, which helps simplify network operations, free IT staff from time-consuming and repetitive network configuration tasks, and create a standard error-free underlay network.

The Advantage tier also includes several AI-driven features, such as AI Network Analytics and AI Endpoint Analytics. Find anomalies instantly with complex event processing using cloud-based AI/ML and machine reasoning for root cause analysis. Guided remediation allows for single-click resolution, allowing machine reasoning automation to close the loop. AI Endpoint Analytics identifies and checks the compliance of endpoints by analyzing traffic flow behavior in real time. It adjusts the endpoint trust score and automatically assigns new policies corresponding to the trust level to mitigate any threat at the source. Cisco Secure Network Analytics with Encrypted Traffic Analytics (ETA) identifies endpoint security threats, like malware and data breaches, that are encrypted. Note that ETA requires Secure Network Analytics (formerly Stealthwatch®) licenses, which can be purchased a la carte or with the Cisco DNA Expansion Pack.

Cisco Spaces for Smart Buildings

One of our latest additions is Cisco Spaces for Smart Buildings. The integration of IoT gateways on the Cisco Catalyst™ 9000 switch family with Cisco Spaces creates a foundation for managing smart buildings by democratizing the IoT ecosystem. Smart building application providers can now interface with hundreds of different types of device vendors and application partners by using Cisco APIs to extract telemetry from the devices through Cisco Spaces. The IoT gateways running on the Catalyst 9000 family—the most widely deployed network access in the world—interpret and normalize telemetry from all the various endpoints in a smart building ecosystem, feeding the information to Cisco Spaces. This democratized IoT platform relieves smart building application providers from the responsibility of building integrations to thousands of different devices. Cisco Spaces Extend is a powerful end-to-end, indoor location services cloud platform that extends platform capabilities via integrations and partner applications. It includes Cisco Spaces See, which provides business insights such as behavior metrics, location analytics, and more.

Cisco SD-Access

You can enable Cisco SD-Access with the Advantage tier. It provides visibility-based, automated, end-to-end segmentation to separate user, device, and application traffic without the need to redesign the underlying physical network. Cisco SD-Access automates user-access policy so organizations can make sure the right policies are established for any user or device with any application across the network. Cisco Identity Services Engine (ISE) licenses are required for SD-Access; these can be purchased a la carte or with the Cisco DNA Expansion Pack.

Hardware IPsec support

IP Security (IPsec) is the latest addition to Cisco DNA Advantage. Hardware IPsec support has been added for a few of the Catalyst 9000 switches (the Catalyst 9300X and Catalyst 9400X Supervisor Engine-2 and Supervisor Engine-2XL). It supports Internet Key Exchange (IKE) v2 standard-based Layer 3 hardware encryption for secure edge connect (>100 Gbps) and enables high-bandwidth, secure transport between sites or from site to cloud.



Figure 3.
Cisco Catalyst 9000 Series switches

Cisco ThousandEyes

For the Catalyst 9300 and 9400 Series switches, Cisco ThousandEyes Network and Application Synthetics and Cisco Spaces are available. Note that ThousandEyes integrations can be added to other Catalyst platforms, such as the 9500 and 9600 Series, that support application hosting. These integrations are not available on the Catalyst 9200 Series. ThousandEyes visibility provides you with immediate insight into the digital experience of campus users connecting to any application, spread across multicloud deployments. ThousandEyes also requires additional licenses. The ThousandEyes product ID with a default value of 1 is included in Cisco DNA Advantage at no additional cost.

Application hosting

Application hosting infrastructure provides the flexibility to host Cisco signed or third-party applications on Catalyst 9000 switches as Docker containers to meet business-relevant use cases such as running administrative or security tools without an additional physical or cloud-based virtual server. Collecting and analyzing data at the edge empowers you to make local decisions, reducing the latency and bandwidth of the network.

As in Cisco DNA Essentials, it's important to note that some of these features are enhanced through Cisco DNA Center, our powerful network controller and management dashboard. Cisco DNA Advantage is the ideal choice for those who want to experience Cisco's full breadth of innovation and latest features.

What if you do not have a Cisco DNA Center appliance? You can still take advantage of the features that do not require the appliance:

Cisco Spaces for Smart Buildings	As mentioned above, the integration of IoT gateways on the Cisco Catalyst 9000 switches with Cisco Spaces creates a foundation for managing smart buildings by democratizing the IoT ecosystem.
Secure Network Analytics (Stealthwatch) integration	For customers using Secure Network Analytics, you can direct specific NetFlow parameters to your Secure Network Analytics cloud or appliance for encrypted traffic analytics and detect malware within encrypted data on your network. This allows Secure Network Analytics to quarantine the infected endpoint before it infects your network.
Cisco Prime Infrastructure License	Provides a single integrated solution for comprehensive lifecycle management of the wired or wireless access, campus, and branch networks, and rich visibility into end-user connectivity and application performance assurance issues. Only available on Catalyst 9000 switches.
Software Support Service (SWSS)	This provides all updates and upgrades for the device software which protects investment and brings new device functionality. SWSS also entitles you to 24-hour Cisco TAC support.

Figure 4. Cisco DNA Advantage switching features that do not require the appliance

Software support for switching



With your Cisco DNA software subscription, you receive embedded Cisco Software Support Service (SWSS), which covers 24x7x365 Cisco Technical Assistance Center (TAC) support, software release updates, advanced support analytics, and designated service management. This support is valid only for the Cisco DNA software subscription stacks (Cisco DNA Essentials and Advantage).

For full hardware support, including the network stack (Network Essentials and Advantage), customers require Cisco Smart Net Total Care® for 24x7x365 Cisco TAC support, proactive security and product alerts, and product lifecycle management. An additional option for hardware support is Solution Support for your multivendor Cisco solution environment.

See the [Catalyst Switching Product Bulletin](#) for full support details.

Wireless: Picking a tier



Cisco DNA Software for Wireless is available in two tiers:

Cisco DNA Essentials

Cisco DNA Advantage

Let's dive into the use cases for each tier so you can determine what's right for you. For a full list of features, see the [Wireless Feature Matrix](#).

Cisco DNA Essentials

Cisco DNA Essentials includes features that automate the configuration and deployment of networks with Cisco DNA Center, similar to Cisco DNA Essentials for Switching. Zero-touch provisioning for new device installation allows off-the-shelf Cisco devices to be provisioned simply by connecting to the network. Network Site Design and Device Provisioning allows you to design your wireless network for proper coverage and maximum throughput. You can provision wireless network appliances with the proper settings to maximize performance. As with switching, you also receive features like SWIM, Full Flexible NetFlow, and Cisco IOS EEM. SWIM automates software upgrades and controls the consistency of image versions. Full Flexible NetFlow allows you to get the pulse of your network by collecting statistics for each network transaction. Your devices can generate anonymized information about packet movements in the network (source and destination, size, etc.) Full Flexible NetFlow adds a few more pieces of data to it, allowing different monitoring and troubleshooting tools to be even more precise. Cisco IOS EEM is a powerful and flexible subsystem that provides real-time network event detection and onboard automation. It gives you the ability to adapt the behavior of your network devices to align with your business needs.

As far as network visibility, Cisco DNA Essentials provides a plethora of health dashboards via Cisco DNA Center: overall, network, client, and application. Monitor the operational status of your network devices, clients, and applications in your network seamlessly. Through Cisco DNA Center, you can also have visibility for rogue detection.

What if you do not have a Cisco DNA Center Appliance? You can still take advantage of the features that do not require the appliance:

Full Flexible NetFlow	As described earlier, Full Flexible Netflow is a data source that, when analyzed, can prevent network downtime and security breaches.
Cisco IOS Embedded Event Manager	This provides the flexibility to adapt the behavior of network devices in real time to meet business needs.
Software Support Service (SWSS)	This provides all updates and upgrades for the device software which protects investment and brings new device functionality. SWSS also entitles you to 24-hour Cisco TAC support.

Figure 5.
Cisco DNA Essentials features that do not require the appliance

Cisco DNA Advantage

Cisco DNA Advantage is a premium tier that includes our latest innovative features. All the features mentioned in the Cisco DNA Essentials section are included in Advantage.

Wireless 3D Analyzer

Wireless coverage issues can be challenging to identify and locate. Currently, wireless maps do not give a true representation of Wi-Fi signal propagation through actual obstacles, building materials, and architectural designs. A new way to visualize your Wi-Fi network is with the Wireless 3D Analyzer. This ground-breaking feature, included in Cisco DNA Center, performs granular analysis of millions of spatial RF data points and provides the ability to automatically visualize RF characteristics and identify, locate, and alert network operators of trouble spots.

Cisco User Defined Network

Cisco User Defined Network (UDN) provides secure and remote onboarding of client devices and allows IT to give end users control of their very own wireless network partition. End users can then remotely and securely deploy their devices on this network. This enables a personal network experience in a shared network environment. Cisco UDN grants both device security and control, allowing end users the choice of who can connect to their network. The solution also gives end users the ability to invite trusted users to their personal network through the mobile app so that they can collaborate and share their devices with them.

Cisco Spaces

Cisco Spaces is a single scalable, reliable location platform that digitizes spaces by centralizing location services for both people and things. This powerful location platform leverages existing Wi-Fi infrastructure to give you actionable insights and drive business outcomes. Your Cisco wireless network could deliver more than connectivity and eliminate the data blind spots in your physical spaces. Cisco Spaces is available in three tiers: See, Extend, and Act. Cisco DNA Advantage provides Cisco Spaces See and Extend, and Act is available as an optional upgrade.

Cisco SD-Access

As with switching, you can enable Cisco SD-Access with the Advantage tier. It provides visibility-based, automated, end-to-end segmentation to separate user, device, and application traffic without redesigning the underlying physical network. Cisco SD-Access automates user-access policy so that organizations can make sure the right policies are established for any user or device with any application across the network. ISE licenses are required for SD-Access; these can be purchased a la carte or with the Cisco DNA Expansion Pack.

Artificial intelligence-driven features

The Advantage tier also includes several AI-driven features, such as AI Network Analytics and AI Endpoint Analytics. Find anomalies instantly with complex event processing using cloud-based AI/ML and machine reasoning for root cause analysis. Guided remediation allows for single-click resolution, allowing machine reasoning automation to close the loop. AI Endpoint Analytics identifies and checks the compliance of endpoints and classifies them into groups.

Cisco Adaptive Wireless Intrusion Prevention System

The Cisco Adaptive Wireless Intrusion Prevention System (aWIPS) is a wireless intrusion threat detection and mitigation mechanism. aWIPS uses an advanced approach to wireless threat detection and performance management. An access point detects threats and generates alarms. It combines network traffic analysis, network device and topology information, signature-based techniques, and anomaly detection to deliver highly accurate and complete wireless threat prevention. With a fully infrastructure-integrated solution, you can continually monitor wireless traffic on both wired and wireless networks and use that network intelligence to analyze attacks from many sources to accurately pinpoint and proactively prevent attacks, rather than waiting until damage or exposure has occurred.

It's important to note that most of these features are enabled through Cisco DNA Center, our powerful network controller and management dashboard. Cisco DNA Advantage is the ideal choice for those who want to experience Cisco's full breadth of innovation and the latest features.

What if you do not have a Cisco DNA Center Appliance? You can still take advantage of the features that do not require the appliance:

Cisco Spaces See and Extend	Cisco DNA Essentials subscribers can see what's happening in their wireless networks and improve experiences by accessing the Cisco Spaces web portal.
Adaptive Wireless Intrusion Prevention System (aWIPS)	Detect rogue access points and "honey pots" for improved wireless security.
Software Support Service (SWSS)	This provides all updates and upgrades for the device software which protects investment and brings new device functionality. SWSS also entitles you to 24-hour Cisco TAC support.

Figure 6.
Cisco DNA Advantage wireless features that do not require the appliance

Software support for wireless

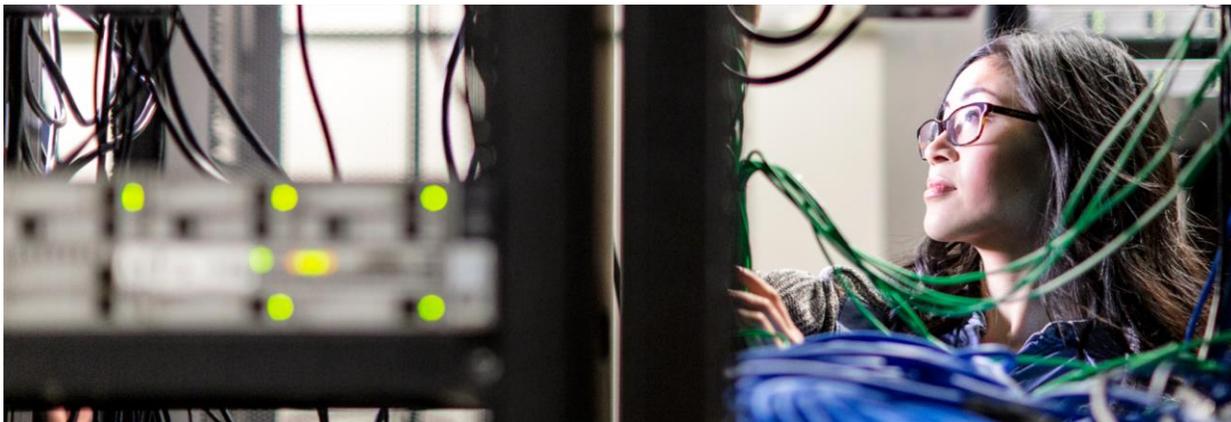
With your Cisco DNA software subscription, you receive embedded Cisco SWSS, which covers 24x7x365 Cisco TAC support, software release updates, advanced support analytics, and designated service management. This support is valid only for the Cisco DNA software subscription stacks (Cisco DNA Essentials and Advantage).

To be entitled to return materials authorization (RMA) for access point hardware, you need Cisco Smart Net Total Care. To get RMA entitlement, TAC support, and OS upgrades and updates on WLAN controllers, you need to purchase Smart Net Total Care for controllers. Cisco Solution Support is the default service for controllers and access points. Solution Support is not mandatory, but if you cover your wireless network components under Solution Support, you receive Solution Support coverage on your Cisco DNA Software subscription licenses. It's important to note that at the end of the Cisco DNA Software subscription term, you either must renew the Cisco DNA subscription or purchase Smart Net Total Care for the controller and access points to continue to receive software updates and TAC support.

Table 1. Support options available for wireless hardware and software

Type	Cisco support offers	RMA	TAC	OS upgrades and updates
Wireless LAN controller	Smart Net Total Care	✓	✓	✓
Wave 2 access point hardware	Smart Net Total Care	✓	-	-
Cisco DNA Software license for an access point	Embedded SWSS	-	✓	✓

SD-WAN and Routing: Picking a tier



Cisco DNA Software for SD-WAN and Routing is available in three tiers:

Cisco DNA Essentials

Cisco DNA Advantage

Cisco DNA Premier

Let's dive into the use cases for each tier so you can determine what's right for you. For a full list of features, see the [SD-WAN and Routing Feature Matrix](#).

Cisco DNA Essentials

Cisco DNA Essentials includes features that enable your entry into software-defined WAN (SD-WAN).

SD-WAN Layer 2 and Layer 3 Routing

Cisco DNA Essentials enables flexible network topology, including hub-and-spoke and both full- and partial-mesh architectures running over IPv4 or IPv6 (VPNs are limited to four user VPNs plus one management VPN). Enable redundancy with DSL, 4G LTE, and multilink router interfaces. Run static or dynamic routing across your network with basic path optimization. Bring up new branches and new locations with zero-touch provisioning and onboarding. And manage it all using Cisco vManage via the cloud or on-premises.

Cloud

Part of what sets Cisco DNA Essentials apart is the inclusion of cloud security and cloud application functionality in our entry-level offer.

Your network is only as good as it is secure. Cisco DNA Essentials for SD-WAN and Routing offers a multilayered cloud security solution consisting of an enterprise firewall with a Talos® powered intrusion protection system and Cisco Secure Endpoint, including TLS/SSL proxy support, URL filtering, and fully qualified domain name (FQDN) support, plus Cisco Umbrella® DNS monitoring (visibility only). Cisco DNA Essentials also now includes Cisco's cloud-based or on-premises SD-WAN Application Intelligence Engine, a deep packet inspection engine.

Software as a Service (SaaS)

Beyond simply being able to route based on applications and service-level agreements (SLAs), Cisco DNA Essentials includes Cloud OnRamp for Multicloud (Google Cloud Platform, Amazon Web Services, Azure, etc.) and Cloud OnRamp for Software as a Service (for all applications, including Microsoft 365, Webex®, Salesforce, Workday, Box, DocuSign, etc.), plus cloud monitoring capabilities via vManage.

Cisco DNA Essentials for SD-WAN and Routing provides all the above and more, to help ensure the best SD-WAN, cloud, and SaaS experience for your users at a reasonable price point.

Cisco DNA Advantage

Cisco DNA Advantage is the next-level tier that includes our latest innovative features. All the features mentioned in the Cisco DNA Essentials section—SD-WAN Layer 2 and Layer 3 routing, cloud, and SaaS features—are included in Cisco DNA Advantage, plus we raise the bar even further.

vAnalytics

First of all, Cisco DNA Advantage includes vAnalytics, our powerful cloud-based service that offers insights into the performance of applications and the underlying SD-WAN network infrastructure. Use multilayer insights into application behavior, application quality of experience (QoE), bandwidth usage, and distribution across sites, devices, tunnels, and carrier links to review the usage of various applications over time in a given infrastructure, assess end-user experience with these applications, and correlate end-user experience with the underlying network performance. And since Cisco vAnalytics collects and stores metadata about traffic flows in its cloud storage for a maximum of one year, you can go back in time to generate analytics based on the historical data.

Advanced Multicloud Cloud OnRamp

Second, Cisco DNA Advantage augments Cloud OnRamp with telemetry capabilities to help fine-tune best-path calculations on Office 365 installations, uplevels vManage to provide advanced monitoring capabilities for multicloud and SaaS, and provides Amazon Web Services GovCloud, Azure vWAN and Azure GovCloud integration, and Catalyst 8000V Edge Software upgrade/downgrade support.

Integrated Border for Campus

Third, Cisco DNA Advantage includes Integrated Border for Campus. Whether in the WAN or the LAN, on the campus or in a branch, you can be sure of unified policy and security implementation for every user, regardless of where they connect.

No VPN restrictions

And lastly, Cisco DNA Advantage for SD-WAN and Routing lifts all VPN restrictions.

Cisco DNA Premier

Cisco DNA Premier is just like it sounds: the option for those who demand only the finest from their SD-WAN. It has all the features mentioned in the Cisco DNA Essentials section—SD-WAN Layer 2 and Layer 3 routing, cloud, and SaaS features—as well as all the features mentioned in the Cisco DNA Advantage section—vAnalytics, full-telemetry Cloud OnRamp, and Integrated Border for Campus—plus we raise the bar as high as it can go.

Cisco Umbrella SIG Essentials

Cisco DNA Premier includes Cisco Umbrella SIG Essentials licenses. SD-WAN and Umbrella are core elements of Cisco's secure access service edge (SASE) architecture that consolidates networking and security functions. With Cisco DNA Premier, you can simply and rapidly deploy Umbrella across your network and gain powerful cloud-delivered security to protect against threats on the internet as well as to secure cloud access. This market-leading automation makes it easy to deploy and manage the security environment over tens, hundreds, or even thousands of remote sites. Umbrella offers flexibility to create security policies based on the level of protection and visibility you need—all in the Umbrella dashboard. Here are the Umbrella elements included with a Cisco DNA Premier subscription:

- Cloud-delivered DNS-layer security to block requests before a connection is even established
- A full-proxy secure web gateway to log and inspect all web traffic
- A cloud access security broker (CASB) plus App Discovery functionality to uncover rogue apps
- A cloud-delivered firewall to prevent intrusions
- Globally sourced internet activity threat intelligence to uncover malicious domains, IPs, and URLs
- Cisco Secure Malware Analytics to detect and quarantine malicious files

The combination of Cisco DNA Premier for SD-WAN and Routing and these six items in Cisco Umbrella SIG Essentials effectively covers all five of Gartner's use cases for SASE deployments.

Selecting bandwidth in Cisco DNA Software for SD-WAN and Routing

One of the added wrinkles in SD-WAN and Routing not present in Switching and Wireless is the need to select a bandwidth tier along with a software tier. Cisco is simplifying licensing and addressing the customer confusion in the market regarding bandwidth consumption in traditional routing and SD-WAN deployments. Rather than offer a dozen or more discrete bandwidth levels, we've reduced the number of choices to four generously sized bandwidth tiers:

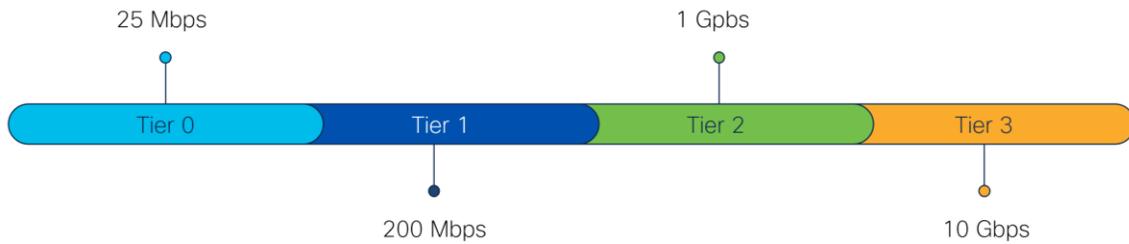
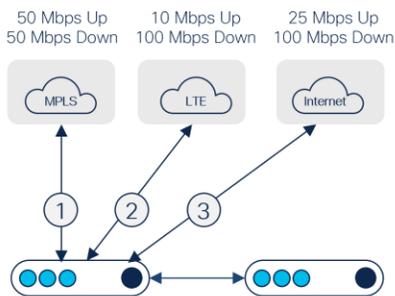


Figure 7.
Four bandwidth tiers in Cisco DNA Software for SD-WAN and Routing

Let's take a quick look at how bandwidth is determined in SD-WAN and Routing by working through an example.

Bandwidth metering Cisco DNA Subscriptions



$$\begin{matrix} \text{Upstream} \\ 50 + 10 + 25 \end{matrix} + \begin{matrix} \text{Downstream} \\ 50 + 100 + 100 \end{matrix} = \begin{matrix} 355 \text{ Mbps Aggregate Bandwidth} \\ \text{(use to match agg bandwidth entitlement)} \end{matrix}$$

OR

$$\begin{matrix} \text{Aggregate Bandwidth Level} \\ 335 \text{ Mbps} \end{matrix} \div 2 = \begin{matrix} 167.5 \text{ Mbps Nominal Bandwidth} \\ \text{(use to match bandwidth product ID)} \end{matrix}$$

Proper Bandwidth Selection: Bandwidth Tier 1 (200 Mbps/400 Mbps agg)

With a Cisco DNA subscription, bandwidth entitlement on a device can be utilized in any upstream/downstream ratio across all WAN circuits

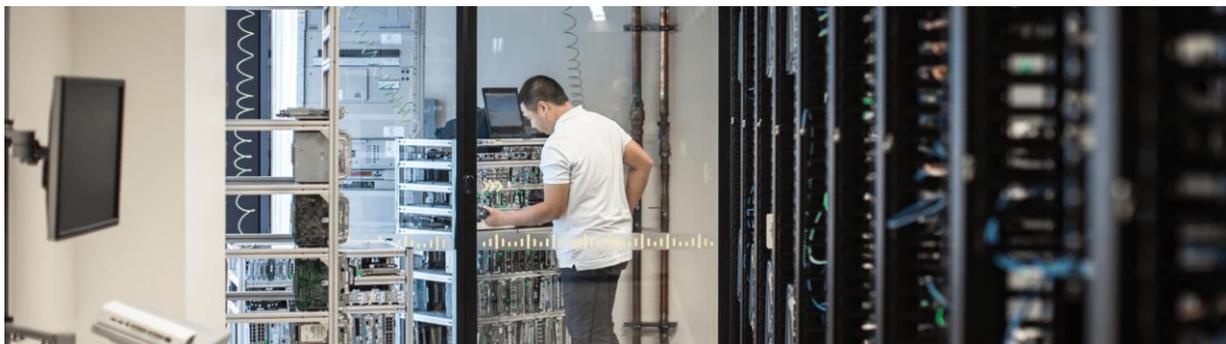
Figure 8.
How bandwidth is determined in Cisco DNA Software for SD-WAN and Routing

Add all of your bandwidth usage together. Upstream. Downstream. Across all circuits. That total is your aggregate bandwidth. In this example, it's 335 Mbps. Now divide that by 2 to get your nominal bandwidth level.

Nominal bandwidth is what Cisco's product ID (PID) is based on. In this case, you need a PID that can handle greater than 167.5 Mbps. That's the 200 Mbps bandwidth tier. But if you look at the sum of your downstream bandwidth (250 Mbps), you'll see that it alone is over 200 Mbps. And because of that, you might think that the Tier 1 bandwidth license is insufficient. Don't worry: it is. The 200 Mbps in Tier 1 enables 400 Mbps of aggregate bandwidth, which can be used in any upload/download ratio.

The key thing to remember in bandwidth selection is that aggregate bandwidth is double the nominal bandwidth. And Cisco permits aggregate bandwidth to be used in any upload/download ratio.

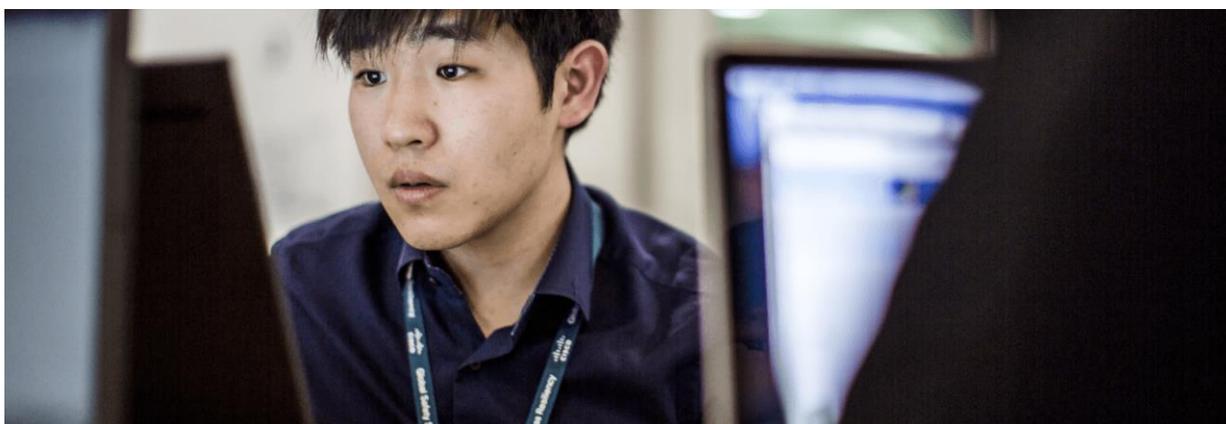
Software support for SD-WAN and Routing



With your Cisco DNA software subscription, you receive embedded Cisco SWSS, which covers 24x7x365 Cisco TAC support, software release updates, advanced support analytics, and designated service management. This support is valid only for the Cisco DNA software subscription stacks (Cisco DNA Essentials, Advantage, and Premier). Allowing a Cisco DNA subscription to SD-WAN and Routing to lapse eliminates the entitlement to call technical support for Cisco DNA software features.

SD-WAN and routing device OS updates are not entitled via the Cisco DNA subscription and are available only via a service contract on the hardware. For full hardware support, including the network stack (Network Essentials and Advantage), you require Smart Net Total Care for 24x7x365 Cisco TAC support, which provides proactive security and product alerts and product lifecycle management. An additional option for hardware support is Solution Support for your multivendor Cisco solution environment. Without an active service contract, you will not have access to technical support for the hardware or the hardware's operating system.

Intelligent network controllers



What is Cisco DNA Center?

Cisco DNA Center is an open, extensible platform for streamlining IT workflows and achieving greater business innovation. Use this powerful network controller and management dashboard to take charge of your wired and wireless network, optimize your Cisco investment, secure your hybrid workforce, and lower your IT spending. Full automation capabilities for provisioning and change management are enhanced with AI/ML-enriched analytics that pull streaming telemetry from everywhere in the network. Applications, services, and users are prioritized based on business goals, within policy parameters and security best practices.

Network, application, or device performance shortcomings are flagged, and instant remediation guidance is offered, saving hours of IT troubleshooting. Additionally, machine reasoning automates complex networking tasks with the click of a button, to enable your newer administrators and save time for your seasoned engineers.

This interconnection of automation and assurance forms a continuous validation and verification loop, checking alignment of network operation with business intent. Through open APIs and SDKs, third-party technologies can be run on top of Cisco DNA Center and benefit from its powerful network visibility.

What is vManage?

In much the same way that Cisco DNA Center manages switching, wireless, and traditional routing, Cisco vManage provides a centralized means to manage Cisco SD-WAN devices efficiently.

Cisco vManage is a highly visualized management dashboard that enables the orchestration and management of SD-WAN resources and provides the tools to centrally monitor and simplify network operations. Through the vManage dashboard, network administrators can quickly establish an SD-WAN overlay fabric to connect data centers, branches, campuses, colocation facilities, and a hybrid workforce to improve network speed, security, and efficiency. Other key capabilities include:

- Performing authentication, authorization, provisioning, and upgrading of all elements deployed in the network
- Providing information regarding component-to-component connectivity
- A centralized policy engine to implement policies and connectivity (routing information, access control, segmentation, fallback/failover, extranets, and service chaining) across the SD-WAN fabric
- Providing policy constructs to manage SD-WAN resources regardless of location
- Orchestrating scalable and consistent unified communications configurations across the entire enterprise via templates
- Providing visibility into network or application performance

Additionally, vManage now includes two new integrations:

- Cisco ThousandEyes extends visibility into the internet, cloud, and SaaS. You can quickly pinpoint the source of issues, get to resolution faster, and manage the performance of what matters.
- Cisco Umbrella accelerates the transition to a SASE architecture. You can quickly connect, monitor, and protect all company data centers, core and campus locations, branches, colocation facilities, cloud infrastructure, and remote workers.

Benefits of renewing your software subscription

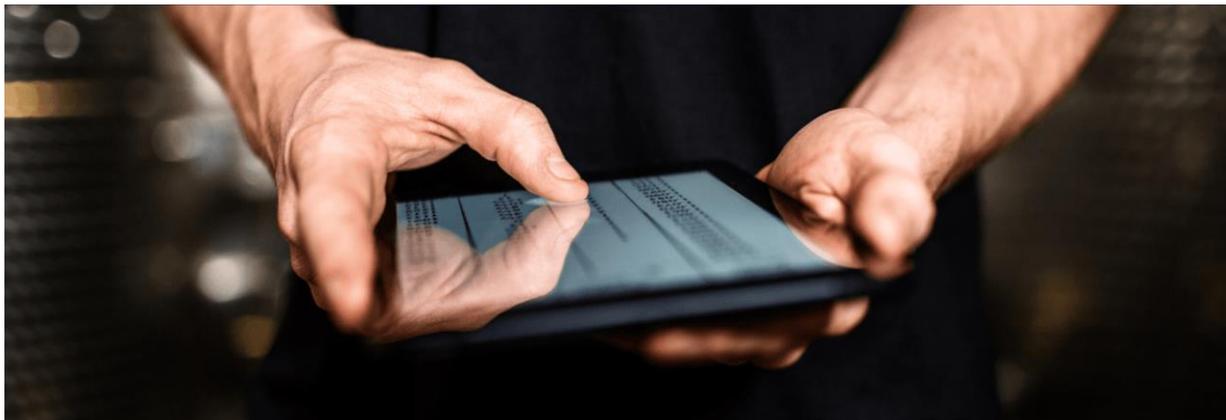


There are many benefits of renewing your Cisco DNA software subscription:

- Continuous access to innovation and new features at no additional cost
- Continued access to the current feature library
- Software support for your feature set
- Financial predictability, as subscriptions are a welcome replacement for the peaks and valleys of past budgeting

Check out the [top reasons to adopt and renew your Cisco DNA Software subscription.](#)

Resources



[Cisco DNA Software for Switching](#)

[Cisco DNA Software for Wireless](#)

[Cisco DNA Software for SD-WAN and Routing](#)

[Cisco DNA Center](#)

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