

# Understanding Cisco DNA and Catalyst Software

Solutions and Use Cases by Tier

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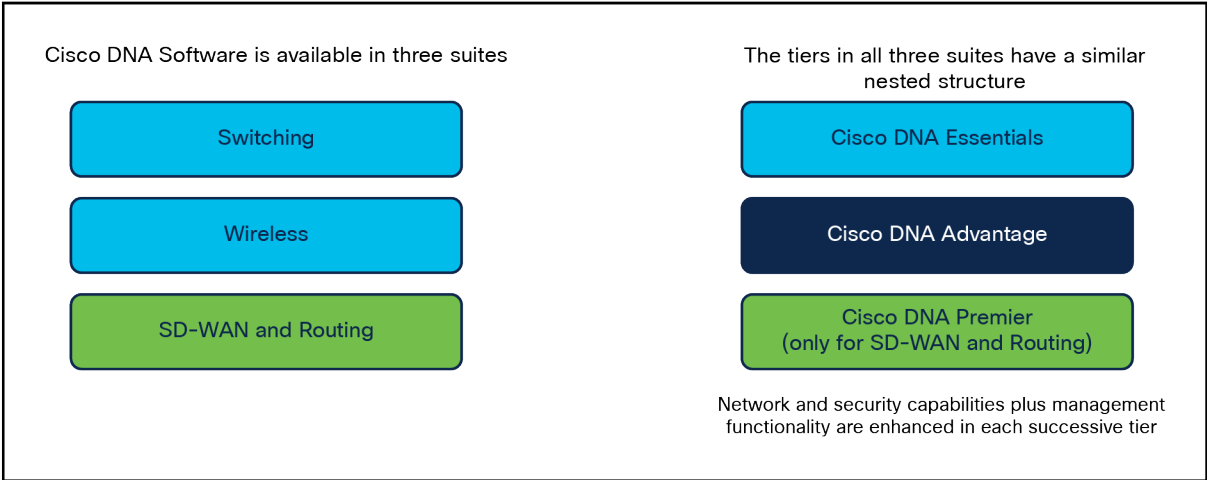
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Description: Cisco DNA software subscriptions are available for switching, wireless, and SD-WAN and Routing. Cisco Catalyst software subscriptions are also available for switching only at this time. This guide helps you choose the subscription that is right for you, based on your use cases and business needs.

### What is Cisco DNA and Catalyst Software?



Cisco DNA and Catalyst 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.



**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

The Catalyst software subscription is also available for Switching, with the same tier structure (Catalyst Essentials, Catalyst Advantage).

### **What is the difference between the new Catalyst software subscription and existing Cisco DNA software subscription for Switching:**

The Catalyst software subscription for Switching includes base software and hardware support for the Essentials and Advantage tiers. This support delivers a four-hour TAC response objective for severity 1 and 2 service requests. In addition, if you opt for the Advantage tier, you also receive ISE licenses (quantity dependent on switch model).

The Cisco DNA software subscription for Switching includes base support for software only, delivering a one-hour TAC response objective for severity 1 and 2 services requests. The Cisco DNA software subscription does not include ISE licenses.

Note that for both the Cisco DNA and Catalyst software subscription for Switching:

- Cisco DNA features and tier levels (Essentials, Advantage) remain the same.
- Hardware replacements are accessed through the Catalyst warranty program.<sup>1</sup>

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](#).

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<sup>1</sup> Hardware replacements via the Catalyst warranty program provides a best effort next business day response for the United States, Canada, Countries of the European Union, Australia, and New Zealand. Elsewhere, Cisco will ship the advance replacement on the next business day, but actual delivery times might vary depending on customer location. Taxes and duties might apply and must be paid by the recipient of the replacement part.

Catalyst Essentials

The Catalyst 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 Catalyst 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 Catalyst Center, our powerful network controller and management dashboard.

What if you do not have a Cisco Catalyst 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)	Included in the Cisco DNA software subscription, this technical service protects availability for your Cisco Networking technology and business continuity with 24/7 access to the Cisco Technical Assistance Center (TAC) for software-related issues, as well as software updates and upgrades.

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

### Catalyst Advantage

Cisco Catalyst Advantage is our premium tier that gives you the advantage of the latest innovative features. All the features mentioned in the Catalyst Essentials section are included in Advantage. In addition, Catalyst 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. The Cisco Catalyst Advantage tier includes ISE Advantage licenses (quantity dependent on switch model):

Cisco Catalyst 9600 Series	Cisco Catalyst 9500 Series	Cisco Catalyst 9400 Series	Cisco Catalyst 9300 Series
✓ 40 endpoint sessions for ISE	✓ 10 endpoint sessions for ISE	✓ 40 endpoint sessions for ISE	✓ 10 endpoint sessions for ISE

**Note:** ISE is not eligible for the Catalyst 9200 series.

### 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, which is included.

## Hardware IPsec support

Hardware IP Security (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 is 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. Cisco ThousandEyes Network and Application Synthetics entitlements will be provided as described in [ThousandEyes with Cisco Catalyst 9000 Switches](#).

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

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## Technical support for Switching



When purchasing the Cisco Catalyst software subscription for Switching Essentials or Advantage tier, you are automatically entitled to base product-level support for software and hardware support included in the subscription, helping you streamline purchasing, management, entitlement, and renewals for software licenses and support. This base support offers:

- 24x7 access to the Cisco Technical Assistance Center (TAC) for support across software and hardware: Cisco Catalyst Switching software, Catalyst 9000 Switches, and the OS.
- Software and OS updates.
- Access to My Cisco Entitlements and Support Case Manager for a view of assets, licenses, and support cases.
- A four-hour TAC response objective for severity 1 and 2 service requests for software, hardware, and OS issues.
- A Next Business Day (NBD) TAC response objective for severity 3 and 4 service requests for software, hardware, and OS issues.

**Note:** Hardware replacements are accessed separately through [Catalyst 9000 Extended Lifetime Warranty \(E-LLW\)](#).

When purchasing the Cisco DNA software subscription for Essentials or Advantage tier, you are automatically entitled to Cisco Software Support Service (SWSS) included in the subscription. SWSS offers:

- 24x7 access to the Cisco Technical Assistance Center (TAC) for Cisco DNA Software support.
- Software updates.
- Access to My Cisco Entitlements and Support Case Manager for a view of assets, licenses, and support cases.
- A one-hour TAC response objective for severity 1- 4 service requests for software issues.

For assistance with Catalyst Switch issues, you can choose to purchase Cisco Smart Net Total Care—which offers device-specific support—or Cisco Solution Support—which offers centralized support across hardware and software from Cisco and any third-party technology providers, delivering technical care that considers interoperability across your Cisco Networking solution. These hardware support options also include Cisco's eight Return Material Authorization (RMA) options

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 Catalyst 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 Catalyst Center: overall, network, client, and application. Monitor the operational status of your network devices, clients, and applications in your network seamlessly. Through Cisco Catalyst Center, you can also have visibility for rogue detection.

What if you do not have a Cisco Catalyst 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)	Included in the Cisco DNA software subscription, this technical service protects availability for your Cisco Networking technology and business continuity with 24/7 access to the Cisco Technical Assistance Center (TAC) for software-related issues, as well as software updates and upgrades.

**Figure 4.**  
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 Catalyst 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 Catalyst 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 Catalyst 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)	Included in the Cisco DNA software subscription, this technical service protects availability for your Cisco Networking technology and business continuity with 24/7 access to the Cisco Technical Assistance Center (TAC) for software-related issues, as well as software updates and upgrades.

**Figure 5.**  
Cisco DNA Advantage wireless features that do not require the appliance



Software support for wireless

With your Cisco DNA software subscription, you receive Cisco SWSS. SWSS offers:

- 24x7 access to the Cisco Technical Assistance Center (TAC) for Cisco DNA Software support.
- Software updates.
- Access to My Cisco Entitlements and Support Case Manager for a view of assets, licenses, and support cases.
- A one-hour TAC response objective for severity 1- 4 service requests for software issues.

For assistance with Catalyst Switch issues, you can choose to purchase Cisco Smart Net Total Care—which offers device-specific support—or Cisco Solution Support—which offers centralized support across hardware and software from Cisco and any third-party technology providers, delivering technical care that considers interoperability across your Cisco Networking solution. These hardware support options also include Cisco’s eight Return Material Authorization (RMA) options.

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](#).

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## 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 Catalyst SD-WAN Manager 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 Cisco Catalyst SD-WAN Manager.

Cisco DNA Essentials for SD-WAN and Routing provides all the above and more, to help ensure the best Catalyst 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.

### Cisco Catalyst SD-WAN Analytics

First of all, Cisco DNA Advantage includes Cisco Catalyst SD-WAN Analytics, our powerful cloud-based service that offers insights into the performance of applications and the underlying Catalyst 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 Catalyst SD-WAN Analytics 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.

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## 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 Cisco Catalyst SD-WAN Manager 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 Catalyst 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—Cisco Catalyst SD-WAN Analytics, full-telemetry Cloud OnRamp, and Integrated Border for Campus—plus we raise the bar as high as it can go.

## Cisco Umbrella SIG Essentials

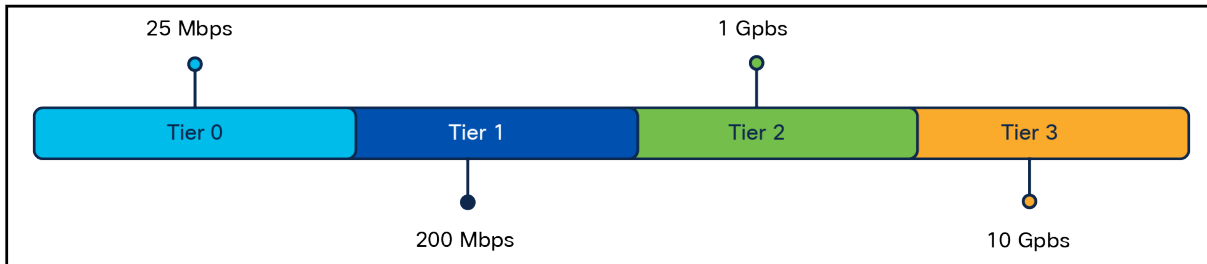
Cisco DNA Premier includes Cisco Umbrella SIG Essentials licenses. Cisco Catalyst SD-WAN and Cisco Umbrella SIG Essentials are core elements of Cisco's Secure Access Service Edge (SASE) architecture that consolidates networking and security functions. With Cisco DNA Premier, you can simply and rapidly deploy Cisco Umbrella SIG Essentials 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. Cisco Umbrella SIG Essentials offers flexibility to create security policies based on the level of protection and visibility you need—all in the Cisco Umbrella SIG dashboard. Here are the Cisco Umbrella SIG 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.

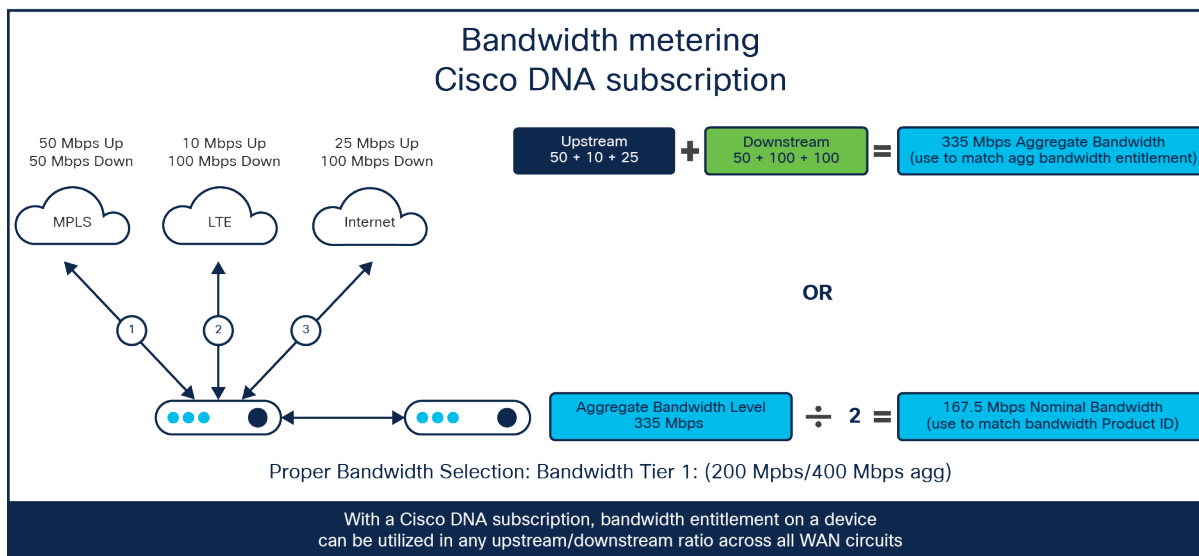
## Selecting bandwidth in Cisco DNA Software for SD-WAN and Routing

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 6.**  
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.



**Figure 7.**  
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.

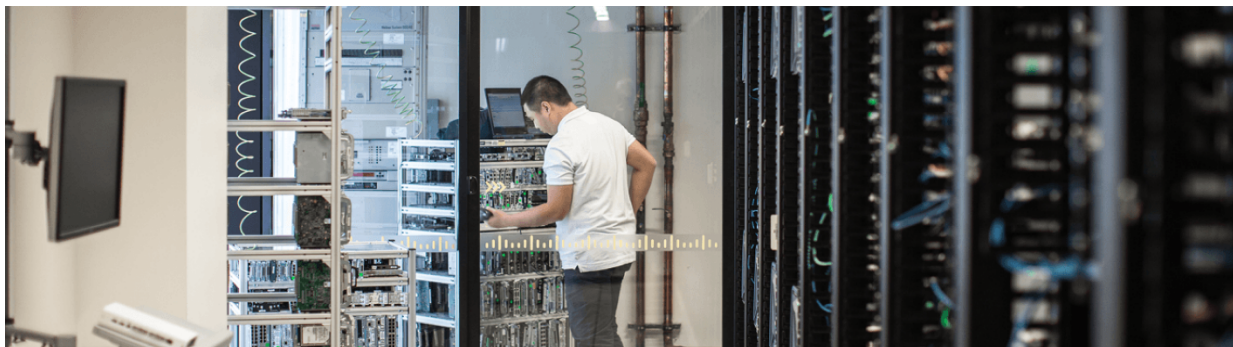
Nominal bandwidth is what Cisco's Product ID (PID) is based on. In this case, you need a PID that can handle greater than 167.5 Mbps. That's the 200 Mbps bandwidth tier. But if you look at the sum of your downstream bandwidth (250 Mbps), you'll see that it alone is over 200 Mbps. And because of that, 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.



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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



Cisco Success Tracks is the default and recommended Cisco support service. Learn more about Cisco Success Tracks [here](#). However, Cisco Success Tracks is not mandatory; the customer may choose to use the Cisco Subscription Embedded Software Support included with the purchase of this software or another available Cisco support service or partner service option.

Cisco DNA for SD-WAN and Routing subscription licenses include embedded SWSS support, as well as Success Tracks and Solution Support. These services provide coverage **ONLY** for the subscription functionality (Cisco Catalyst SD-WAN Manager, Cisco Catalyst SD-WAN Analytics, Cisco Catalyst SD-WAN Validator, Cisco Catalyst SD-WAN Controller, Cisco Umbrella SIG Essentials, etc.) enabled by the Cisco DNA Subscription (Cisco DNA Essentials, Advantage, and Premier). These services **DO NOT** cover the Network Stack.

### Intelligent network controllers



#### What is Cisco Catalyst Center?

Cisco Catalyst 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

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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 Catalyst Center and benefit from its powerful network visibility.

### **What is Cisco Catalyst SD-WAN Manager?**

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

Cisco Catalyst SD-WAN Manager is a highly visualized management dashboard that enables the orchestration and management of Catalyst SD-WAN resources and provides the tools to centrally monitor and simplify network operations. Through the Cisco Catalyst SD-WAN Manager dashboard, network administrators can quickly establish a Catalyst 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 Catalyst SD-WAN fabric.
- Providing policy constructs to manage Catalyst 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, Cisco Catalyst SD-WAN Manager 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.

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## Benefits of renewing your software subscription



There are many benefits of renewing your software subscription:

- Continuous access to innovation and new features at no additional cost.
- Continued access to the current feature library.
- Expert base product-level support for your Cisco Networking technologies.
- 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](#).

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## Resources



[Cisco Catalyst software subscription for Switching](#)

[Cisco DNA Software for Wireless](#)

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

[Cisco Catalyst Center](#)

[Cisco Catalyst SD-WAN Manager](#)

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