

# Cisco SD-WAN

Securely connect any user to any location or cloud, across any platform, all with a consistent application experience.

## Introduction

Moving applications to the cloud requires faster, more reliable connectivity. IoT demands even more performance as connected consumer endpoints multiply, taxing bandwidth and exposing sensitive networks to threats and vulnerabilities. Meanwhile, your workforce is becoming more mobile, demanding optimal performance wherever they go.

It's an arduous landscape for a business to manage, but it can be navigated with confidence when using Cisco SD-WAN. Combining software-defined efficiency with the Cisco platforms you have come to trust, Cisco SD-WAN provides unparalleled visibility across your WAN, optimal connectivity for end users, and the most comprehensive security platform to harden your network.



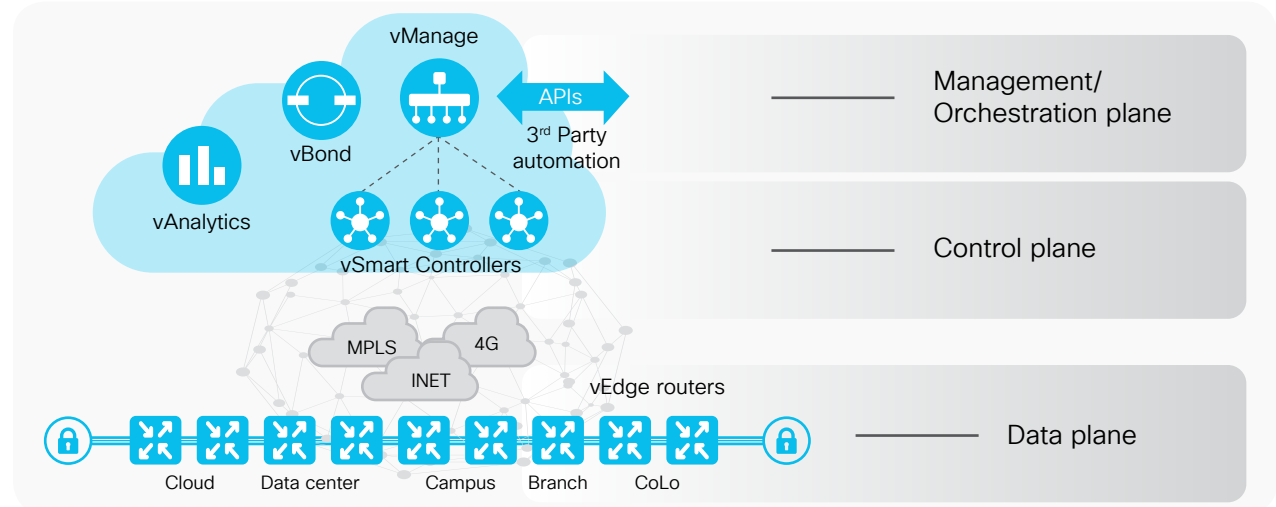
## Licensing

Cisco DNA™ for WAN gives you the flexibility to consume SD-WAN either from the cloud or on-premise without having to manage disparate licenses and terms. Available as either 3 or 5-year subscriptions, customers can choose from a variety of Cisco DNA™ license packages that include:

- Cisco DNA™ Essentials, enabling basic connectivity, SD-WAN, security and application visibility.
- Cisco DNA™ Advantage enables flexible connectivity, advanced SD-WAN, advanced security, assurance and application-driven policy.
- Cisco DNA™ Premier enables advanced SD-WAN, advanced security, application driven policy, network analytics and full WAN optimization.

## Overview

### The Cisco SD-WAN Fabric



Through the Cisco SD-WAN vManage console, you can quickly establish an SD-WAN overlay fabric to connect datacenters, branches, campuses and colocation facilities to improve network speed, security and efficiency. After setting templates and policies, Cisco SD-WAN analytics identifies connectivity and contextual issues to determine optimal paths for users to get to their destination regardless of the connectivity they are using.

Whether hosted in the cloud or on-premise, Cisco vBond and vSmart orchestration and controller platforms authenticate and provision network infrastructure, making certain that the devices connecting to your SD-WAN are authorized. Once connected, SD-WAN platforms find the best path to bring users closer to the applications they need, managing overlay routing efficiency, adjusting in real time to reflect policy updates, and handling key exchanges in Cisco's full-mesh, encrypted delivery.

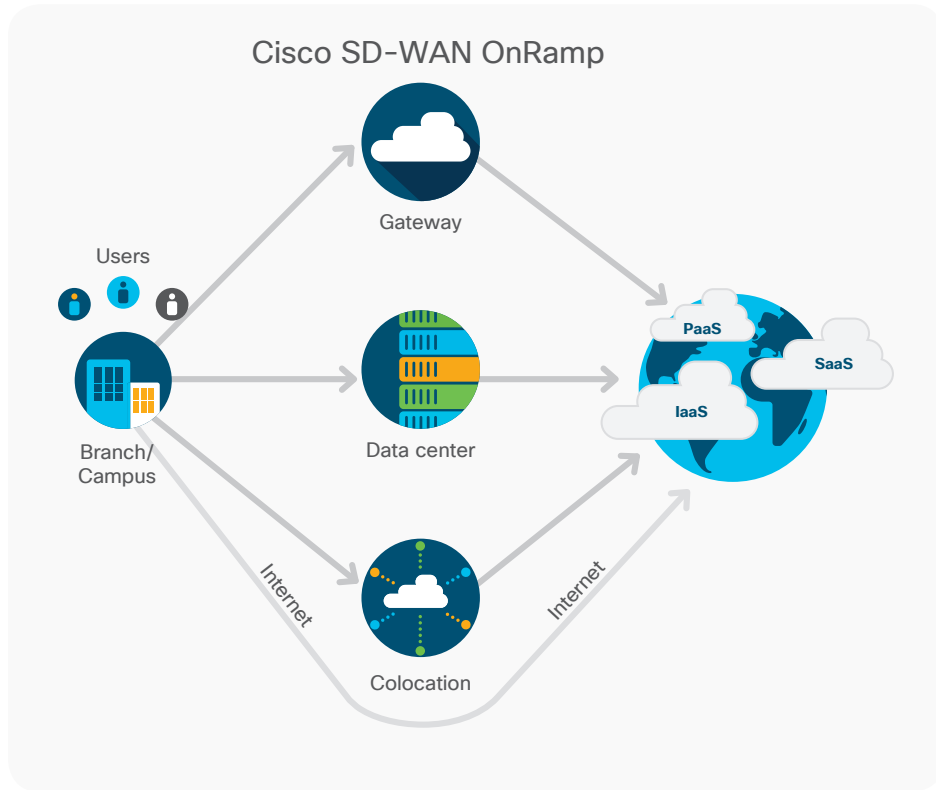
In addition, Cisco SD-WAN supports the common routing protocols that are critical for all enterprise SD-WAN deployments, such as Border Gateway Protocol (BGP), Open Shortest Path First (OSPF), Virtual Router Redundancy Protocol (VRRP) and Internet Protocol version 6 (IPv6).

With Cisco SD-WAN, you will gain:

- **Transport independence:** Flexibility to deploy your WAN over any type of connection, such as MPLS, Internet, or 4G LTE.
- **Network Services:** Rich networking and security services like WAN optimization, firewall and IPS can be deployed on-demand.
- **End-Point Flexibility:** Whether small or large branches, physical or virtual platforms, SD-WAN can be deployed across the branch, campus, data center or cloud.

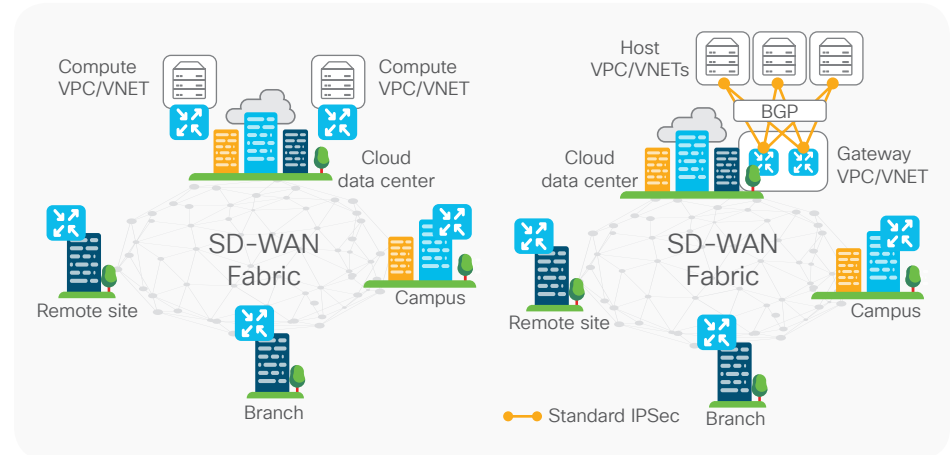
# Unique features and benefits

## Cloud first architecture



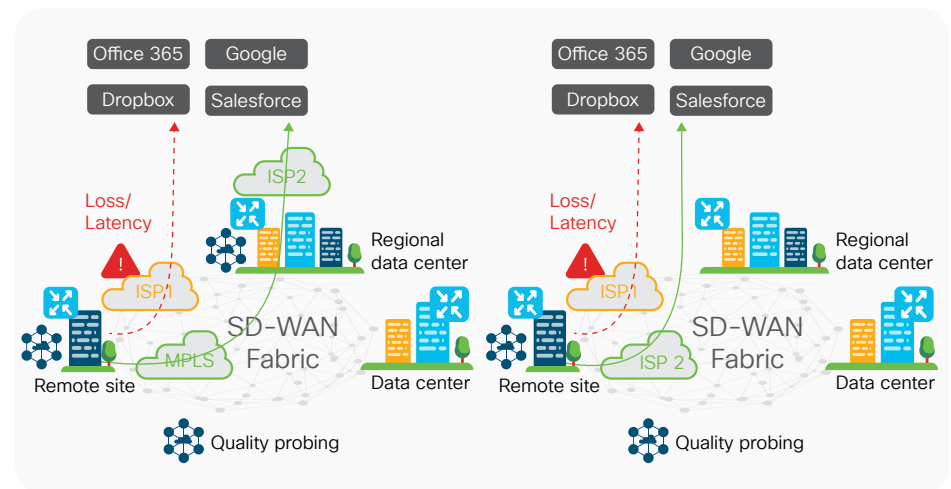
Cisco SD-WAN gives users the ability to not only manage connectivity across their WAN from a single dashboard, but to connect to cloud platforms with greater speed, reliability and efficiency.

In the Cisco SD-WAN vManage console, you can easily automate virtual private gateways deployment in IaaS and PaaS environments. Cisco SD-WAN OnRamp brings your applications closer to customers securely, adjusting your IPsec route as needed to ensure service delivery and performance while monitoring the hosting infrastructure for anomalies.



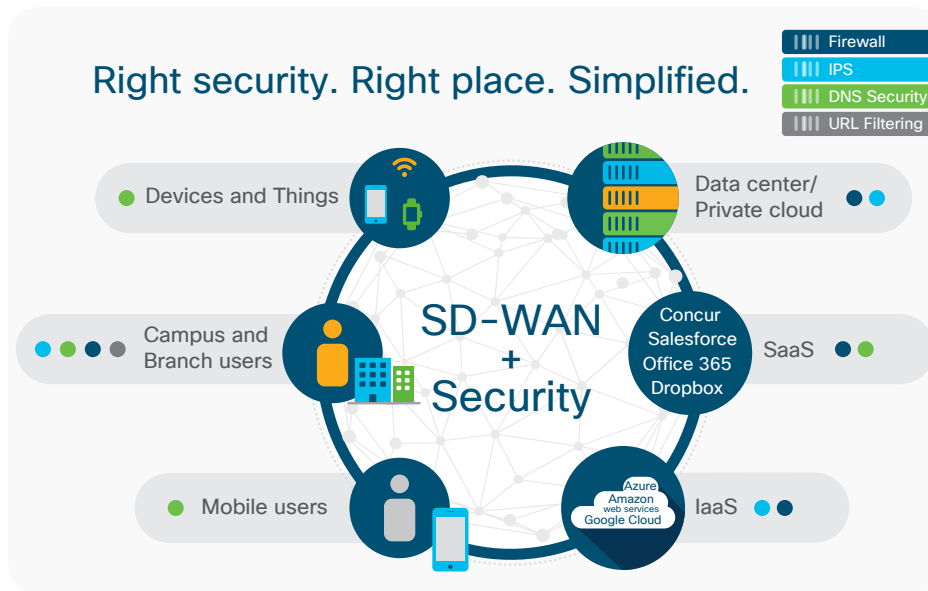
Cisco SD-WAN OnRamp gives you enhanced, automated connectivity to IaaS and PaaS cloud environments without forcing you into existing multitenant gateways or a time-consuming manual process. Cisco SD-WAN gives instant visibility into cloud traffic, control over deployment, and the convenience of automated management.

In addition, Cisco SD-WAN OnRamp can optimize the SaaS applications that you and your stakeholders use in day-to-day operations.



Monitoring underlay performance via the vManage dashboard, Cisco SD-WAN OnRamp automatically selects the fastest, most reliable path to SaaS applications for your users, engaging in real-time steering no matter where they are located. In the event of layer-3 service interruptions beyond your control, Cisco SD-WAN OnRamp will adjust as necessary, ensuring continuous uptime for stakeholders.

**Right security. Right place. Simplified.**



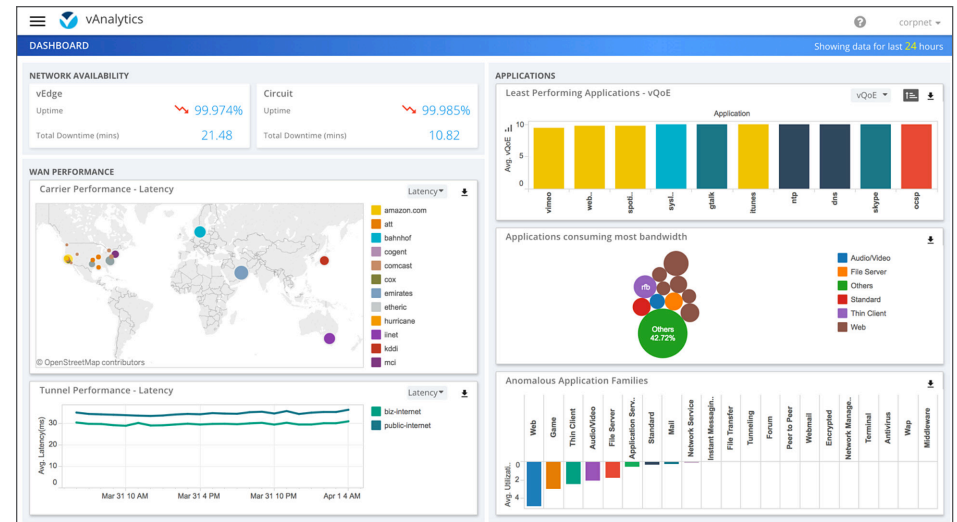
As the world’s leading networking company, Cisco defined the standard for routing. As the largest enterprise cybersecurity provider, Cisco covers thousands of customers with end-to-end protection.

By choosing Cisco SD-WAN, you gain the ability to manage certified-trustworthy platforms while instantly deploying the right security in the right place, all from a single dashboard. With a few clicks in the Cisco vManage console, you can instantly harden your entire network, reducing risk while ensuring business compliance, continuity, and success.

Cisco SD-WAN can transform your Cisco routers into advanced, multi-layered security devices with an application-aware enterprise firewall, IPS, URL filter, and continuous DNS monitoring. As a result, end users—whether in

the data center, branch, campus or a remote location—can enjoy protection from a multitude of security threats. In addition, Cisco SD-WAN can segment network traffic end to end, protecting your business against data exfiltration and insider threats.

**Predictable application experience**



Utilizing the advanced vAnalytics engine accessed through the Cisco vManage console, you can quickly provide stakeholders with the visibility necessary to isolate issues in the WAN. Additional components of vAnalytics include:

- End-to-end visibility into applications and infrastructure across the entire SD-WAN fabric
- Real-time information for failure correlation, cross-customer benchmarking, and application performance scores
- “What-if” scenarios for performance forecasting
- Assistance planning application provisioning, bandwidth increases and branch expansions
- Intelligent recommendations based on existing policies, templates and preferences
- Application Quality of Service (QoS) categorization and policy changes for predictable performance

**“Cisco SD-WAN on ISR routers drives a reliable foundation to quickly integrate SD-WAN and its ability to simplify management and improve real-time access to critical cloud-based business applications”**

US Banking Institution

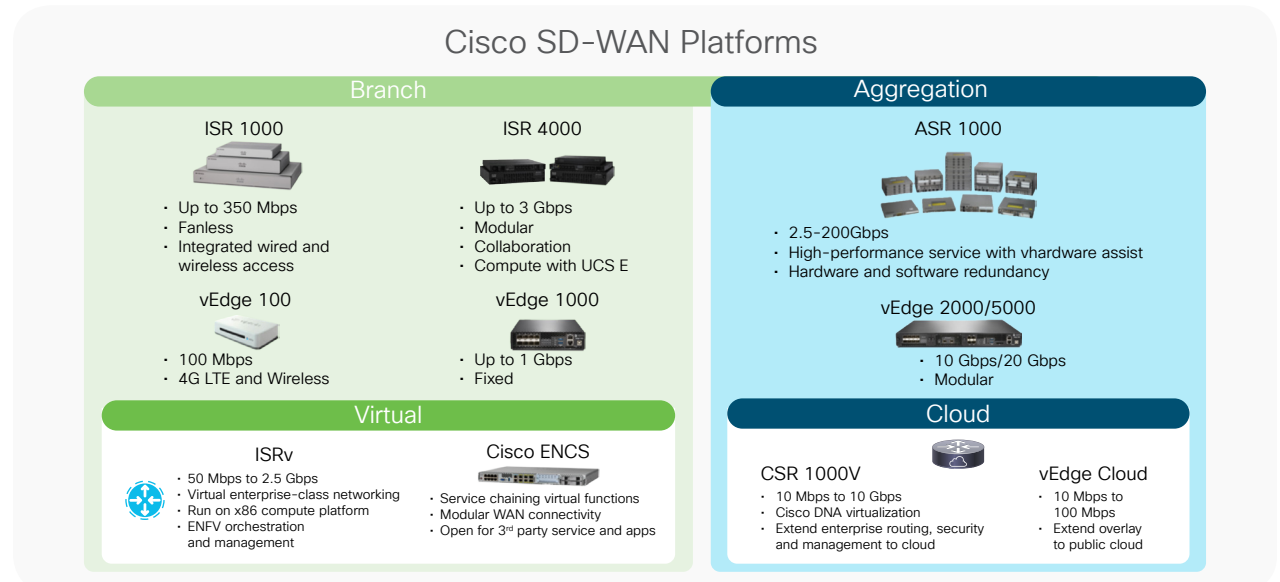
**“SD-WAN on Cisco’s ISR4K routers creates a robust, trusted platform on which to quickly realize security and performance benefits with a simple software upgrade.”**

Rui Pereira, Altice Portugal

In addition, with an enhanced event correlation engine, Cisco SD-WAN vAnalytics helps you cut through noisy event raw data, using its contextual analysis to understand when to turn service interruptions into alarms. This drastically reduces false positives and unnecessary escalations, saving your IT department time to focus on what matters.

Cisco SD-WAN provides advanced analytics, monitoring, and automation for any connection across your network, whether MPLS or beyond the cloud edge. With Cisco SD-WAN, you can help ensure users enjoy optimal speeds and the best performance from the applications they need for success. Enjoy improved productivity and an enhanced user experience with consistent, secure access to business applications on certified trustworthy hardware.

### SD-WAN Platforms:



Whether hardware or software, Cisco strives for quality, innovative technology that will help your business reach new heights. Cisco SD-WAN is no different. With a single-WAN fabric scaling business into multicloud environments, Cisco SD-WAN can manage and provision a wide array of deployment options. Cisco SD-WAN ready devices can be deployed in:

### Branches, Campuses:

With physical, virtual and cloud routing options, you can deploy Cisco SD-WAN on Cisco vEdge, CSR 1000v, ISR 1000 and ISR 4000 routers, and with Network Function Virtualization (NFV) using Cisco SD-Branch solutions like the ENCS 5000 and UCS E-Series platforms.

**“Bringing the WAN edge securely to the Internet is now possible with the new security features of Cisco SD-WAN delivered as a single consolidated solution.”**

**Hussein Omar, Network Solutions Architect, Datacom**

**“With Cisco SD-WAN, we’ve reduced our MPLS spending by 25 percent while increasing bandwidth by 3,075 percent.”**

**Luis Castillo, Global Network Team Manager, National Instruments**

## Headquarters, Datacenter and colocation facilities

With physical, virtual and cloud routing options, you can deploy Cisco SD-WAN on Cisco CSR 1000v, ASR 1K routers or with Network Function Virtualization (NFV) using Regional Hub solutions on the CSP 5K platforms.

With Cisco SD-WAN, select the best platform for your environment, no matter your business needs.

## Use cases

Cisco SD-WAN provides a host of benefits for network, security and cloud management. Benefits that your industry can enjoy include:

### Retail



- Segment Point-Of-Sale (POS) traffic for Payment Card Industry (PCI) compliance and network security
- Provide secure direct Internet access to customers and employees
- Increase bandwidth and significantly reduce circuit costs
- Enable in-store services such as guest wireless, digital signage, remote clerk, and IoT
- Spin up new branches and stores quickly, with zero-touch deployments and pre-provisioning capabilities
- Simplify network and security policy management across the entire organization, including branches





### Healthcare



- Migrate to cloud-based healthcare applications (Electronic Medical Records [EMR] and Electronic Health Records [EHR])
- Increase network uptime of patient and administrative services
- Achieve zero-touch IT capability while migrating the clinic footprint to the cloud
- Rapidly enable services such as guest Wi-Fi, cloud-based VoIP, and dispensing of medications
- Enable increased performance and experiences at branches of different sizes – from full-sized clinics to small clinics
- Meet security and compliance requirements related to HIPAA, segment an internal corporate network from a telehealth/EMR network

## Services:

Cisco Services helps IT teams worldwide design, manage, and maintain some of the most sophisticated, secure, intelligent platforms for digital business. Our innovation, expertise and services quality, coupled with advanced analytics, automation and security, help you bridge the talent gap, manage risk, deliver excellence, and stay ahead of the pace of change.

<b>Education</b> 	<ul style="list-style-type: none"><li>• Get real-time application optimization for productivity and Software-as-a-Service (SaaS) learning applications</li><li>• Meet security and compliance requirements, segment a student's or faculty member's research network from a guest network</li><li>• Connect your entire WAN to cloud at a much lower cost</li></ul>
<b>Finance</b> 	<ul style="list-style-type: none"><li>• Provision more bandwidth at a lower cost due to a diverse pool of active-active capacity</li><li>• Define application policies for optimal quality of experience and application-aware routing to support in-branch services such as digital signage and video teller HD video</li><li>• Ensure high performance and security when using cloud-based finance and trading applications</li><li>• Roll out application-aware topologies leveraging a highly secure fabric and ubiquitous encryption to address differences between ATM communications and branch-to-branch VoIP or video</li></ul>
<b>Manufacturing</b> 	<ul style="list-style-type: none"><li>• Introduce end-to-end segmentation to address compartmentalized lines of business and dozens of isolated segments</li><li>• Secure controlled business partner access through the extranet</li><li>• Manage industrial IoT connectivity and security from a single dashboard</li></ul>
<b>Service providers</b> 	<ul style="list-style-type: none"><li>• Pay a much lower cost to get Internet access in branches (their own or their clients') with SD-WAN, using their own mobile or overlay infrastructure (without needing to go to a competitor for a leased line)</li><li>• Segment POS traffic for PCI compliance and network security</li><li>• Enable in-store/branch services such as guest wireless, digital signage, remote clerk, and IoT</li><li>• Spin up new branches and stores quickly, with zero-touch deployments</li><li>• Get new service revenues faster with a compelling secure SD-WAN offering for business clients</li></ul>