

Transform Your Network to Deliver Secure, High-Performance Application Experiences

What if you could directly connect your network to secure applications and workloads on hybrid and multicloud architectures, optimize the user experience, and reduce your costs?



Overview

Increasingly, enterprises are migrating applications and workloads to hybrid and multicloud architectures, rather than running them in corporate data centers. They are also realizing how the wide area network (WAN) dictates customer experience, security, operational complexity, and cost.

Too often, the architecture that connects public and private environments through the public Internet delivers suboptimal performance. Centralized WAN architectures implemented before hybrid and multicloud architectures typically fall short of providing the necessary bandwidth or addressing latency issues. This architecture is expensive, and in most instances, security is an afterthought; bolted on rather than integrated by design. A growing number of CIOs who run on-premises private clouds are looking to get out of the data center business so their organizations can focus on core competencies.

Cisco and Equinix have joined forces to help you directly connect and transform your WAN for the cloud era—offering tightly integrated solutions to help you meet its requirements. These global leaders in networking and colocation/interconnection will help you consolidate your operations, bring users closer to the services they need, and offer the experience they demand.

Benefits

- Improve performance and customer satisfaction by optimizing data paths to dramatically reduce latency and deliver greater bandwidth.
- Increase security and compliance via a private connection that bypasses the public Internet, consolidates security policies across user types, and helps address data sovereignty requirements.
- Reduce total cost of ownership (TCO) and simplify operations at scale with flexible, efficient WAN routing, prevalidated deployment architectures and services, and a dashboard that manages branch, colocation, cloud, and security.
- Bring new connections, such as remote office, online significantly faster through self-provisioning, while increasing the choices of network service providers.

Trends and challenges

The cloud has brought exciting changes to enterprise networks as businesses run more business-critical applications on hybrid and multicloud architectures—and also rely on third-party software-as-a-service (SaaS) applications.

Consider these statistics:

- 92% of enterprises will grow their WAN bandwidth over the next two years.¹
- 84% of respondents to a recent survey have a multicloud strategy.²
- 66% of enterprises already have a central cloud team of cloud center of excellence, with another 21% planning one.³

Meeting the challenges presented by legacy architecture

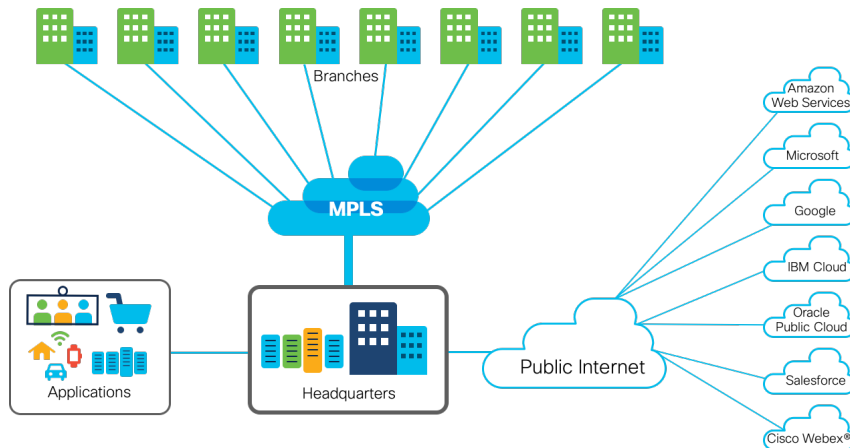
Still, successful cloud migration is a significant challenge due to overall WAN performance. Many legacy WAN architectures—not built for the cloud era—feature a centralized topology that runs over multiprotocol label switching (MPLS) circuits. These expensive circuits often connect the data center to the branch and then data traffic is backhauled from branch offices to the data center to connect to public cloud and SaaS providers. (See Figure 1.) This approach is problematic for several reasons:

- Long-distance data paths mean jittery application performance and increased latency, which impact the user experience.
- Physical distance between endpoints and the data center increases bandwidth and network costs.
- Data egress charges imposed by public cloud providers increase overall operating costs.
- Indirect, insecure access and a lack of visibility into data traversing the public Internet expose enterprises and users alike to security risks.
- Carriers may require several months to establish new MPLS connections, creating unacceptable delays, while self-provisioning of virtual circuits can be done in minutes.

¹ [“Survey Examines WAN Transformation and SD-WAN’s Impact”](#)

^{2,3} [Cloud Computing Trends: 2019 State of the Cloud Survey](#)

Figure 1 Traditional centralized enterprise WAN architecture



Another challenge rests in the relationship between an underlying WAN architecture and an on-premises cloud running in the data center. In this scenario, enterprises must consider not only WAN topology but also where to locate private infrastructure to optimize performance, reduce latency, and deliver the best possible user experience.

Although many CIOs are attracted by the control and security of running workloads in data centers on their premises, more and more are drawn to the prospect of migrating these workloads off-premises to a secure, well-managed colocation facility.

How it works, key features, components, and use cases

Making a direct and secure WAN connection

Cisco and Equinix offer several deployment options for enterprise WAN and collaboration use cases:

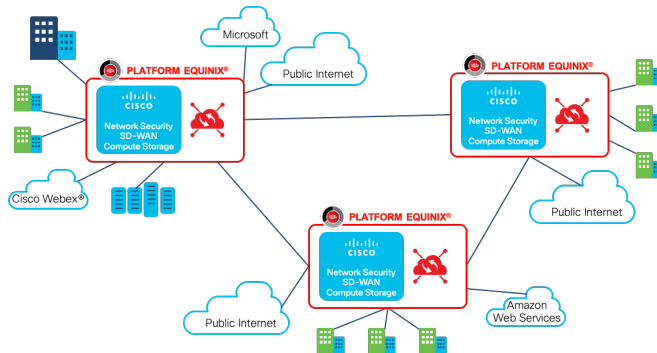
- **Cloud connectivity:** Deploys a self- or partner-managed WAN whose quality of service commitments make it possible to deliver superior performance and secure application experiences at a lower cost.
- **Distributed WAN architecture:** Replaces legacy centralized topology with distributed architecture that directly connects endpoints to Equinix data centers that are connected to each other through Equinix Cloud Exchange Fabric™ (ECX Fabric™).
- **Private cloud footprint at the edge:** Enhances application quality of service for hybrid, multicloud implementation by moving private cloud infrastructure off premises at the edge to a colocation facility closer to the public cloud infrastructure.
- **Collaboration services:** Delivers a better collaboration experience through Cisco Webex® Edge Connect, a dedicated connection between enterprise premises and Webex that peers directly via ECX Fabric and bypasses the public Internet.

“Renting cloud resources long term is expensive.”

Director of Infrastructure

Cloud connectivity and distributed WAN architecture share common elements. Both avoid the public Internet and a traditional centralized topology, as shown in Figure 2. Their unique value resides in performance that delivers the higher bandwidth and lower latencies crucial to optimal user experiences. Both solutions allow you to connect any user to any application across the cloud, while also providing consistent security. This modernized architecture also reduces costly MPLS spending and simplifies day-to-day operations via single-pane-of-glass management.

Figure 2 Cloud connectivity and distributed WAN architecture

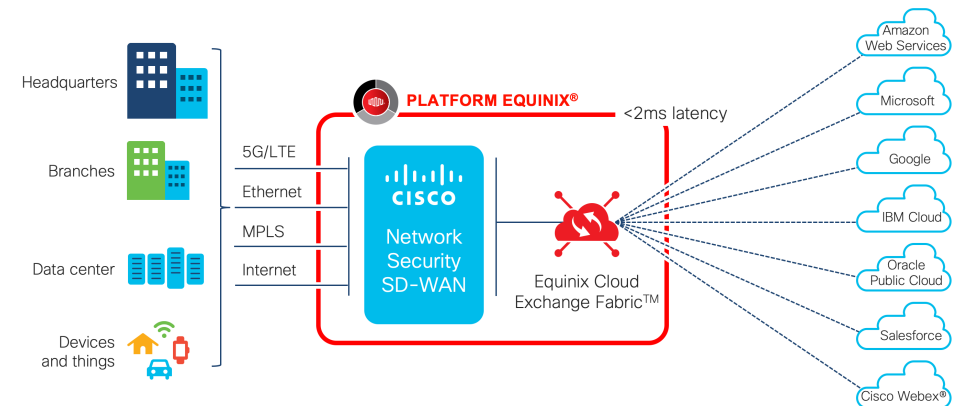


“I want to get out of the data center business.”

Fortune 500 CIO

A private cloud footprint at the edge, as shown in Figure 3, minimizes the physical distance between private and public cloud environments. This approach maximizes available network bandwidth and minimizes latency. The dedicated, direct connection between the private and public clouds reduces security risks. And allowing enterprises to get out of the data center business, while still owning the base infrastructure they need, significantly reduces costs.

Figure 3 Private cloud footprint at the edge



Cisco and Equinix provide both physical and virtual deployment options for these direct-connect solutions. The right option for your organization may be a combination of both. A physical deployment is likely the best choice when you require higher bandwidth and performance, while a virtual model (OpEx focused) may be best for minimal or short-term deployment requirements. Table 1 provides more detail.

Table 1 Deployment options on Platform Equinix®

	Custom-designed	Cisco® Secure Agile Exchange (SAE)	Cisco SD-WAN Cloud OnRamp for Colocation	Equinix Network Edge
Description	Traditional network and security infrastructure deployed in Equinix colocation facility	Highly scalable, virtualized, and automated network infrastructure deployed in Equinix colocation facility	Bundled switching and compute stack, optimized for network functions virtualization (NFV), deployed in Equinix colocation facility	On-demand NFV service available on predeployed infrastructure in certain Equinix metros
System throughput	50 Mbps to 80 Gbps	5 Gbps to 100+ Gbps	1 Gbps to 20 Gbps	50 Mbps to 10 Gbps
Hardware/virtualization	Cisco Aggregation Services Router (ASR), vEdge	Cisco Cloud Services Platform (CSP) 5000, Cisco Nexus® 9000 Series switches	CSP 5400, Cisco Catalyst® 9000 switching family	Virtual form factor only (Cisco CSR 1000V routers, CSR with SD-WAN image)
Service chaining support	N/A	Yes	Yes	2020
Deployment time	1 to 2 months	Months	Weeks	Minutes
Financial model	CapEx OpEx via partner	CapEx OpEx via partner	CapEx OpEx via partner	OpEx
Implemented by	Customer or partner	Partner or Cisco Services	Customer or partner	Customer
Automation/orchestration	Cisco DNA Center Cisco vManage	Cisco Network Services Orchestrator	Cisco vManage	Cisco vManage ECX Portal API enabled

Services

We recommend engaging with Cisco Professional Services and/or Cisco global partner managed services organizations, depending on your needs. Cisco and its partners have the technical expertise necessary to manage proof of concept (POC) engagements as well as planning and designing solution implementations and their ongoing management.

Financing to help you achieve your objectives

Cisco Capital® can help you acquire the technology you need to achieve your objectives and stay competitive. We can help you reduce CapEx. Accelerate your growth. Optimize your investment dollars and ROI. Cisco Capital financing gives you flexibility in acquiring hardware, software, services, and complementary third-party equipment. And there's just one predictable payment. Cisco Capital is available in more than 100 countries. [Learn more.](#)

Agricultural manufacturing company improves multicloud performance with cloud-to-cloud routing

Challenges

As part of its Oracle ERP system deployment, this global company runs production workloads in AWS US-West that are managed by Accenture and provide services to all regions. The manufacturer planned to move its test, development, and preproduction Oracle systems to Oracle Cloud (OCI) in Phoenix and wanted to establish private connectivity between AWS and OCI without implementing physical infrastructure.

Solution

The company deployed a Cisco virtual router, CSR 1000V, in a Silicon Valley-based Equinix data center that connects AWS US-West and OCI in Phoenix via ECX Fabric.

Benefits

The Cisco virtual router connected different company data bases and allowed the customer to migrate its data to OCI, while maintaining data synchronization without creating an additional physical footprint.

The Cisco and Equinix advantage

Cisco and Equinix have partnered to help ensure the success of your cloud and digital transformation initiatives. A leader in networking, compute, and storage—and owner of 46 percent of the global SD-WAN market—Cisco is also an acknowledged collaboration innovator through Cisco Webex. Equinix leads the global colocation market with 96 percent of all Internet traffic flowing through 210 data centers in 55 markets and more than 363,000+ interconnections.



For more information

Are you considering a major cloud migration, or are you concerned about performance and security issues you are already experiencing? Cisco and Equinix deliver hardware, software, and colocation solutions that are already at work in a range of industries. For more information, visit the [Cisco and Equinix partnership site](#), then contact your Cisco, Equinix, or partner representative.

