Cisco Cloud Services Router 1000V

Delivering enterprise-class networking to the cloud with rapid deployment and flexibility

The Cisco® Cloud Services Router 1000V (CSR 1000V) is a router and network services platform in virtual form factor that is intended for deployment in cloud and virtual data centers.

It is optimized to serve as a single-tenant or multitenant WAN gateway. Using proven, industry-leading Cisco IOS® XE Software and Cisco SD-WAN networking and security features, the CSR 1000V enables enterprises to transparently extend their WANs into external provider-hosted clouds and cloud providers to offer their tenants enterprise-class networking services.

Benefits

- **Rapid deployment and service automation:** Virtual form factor accelerates deployment and eliminates hardware costs such as complete equipment upgrades and Return Material Authorizations (RMAs).

- **Single-tenant use:** This feature allows a cloud service provider to provision a routing instance per tenant, simplifying service delivery and tenant management. It also helps the provider overcome VLAN scale limits, increasing tenant scale.

- **Enterprise network extension to the cloud:** This feature provides enterprises highly secure direct connections from their distributed sites to their cloud-hosted applications, improving application response time and user experience.

- **Network consistency:** This feature uses familiar enterprise-class Cisco IOS Software features for consistent network operation across premises and cloud, allowing the enterprise to view the cloud as just another node in its network.

- **Network scalability:** Scale beyond the limitations of 802.1q VLAN tagging by building a VXLAN network, or extending Layer-3 routing deeper into the cloud environment.

- **Consolidation of network functions:** Eliminate the facility requirements and complexity of physical network devices by consolidating multiple network functions onto a single piece of server hardware.

Use cases

The Cisco CSR 1000V is a software router that an enterprise or cloud provider can deploy as a virtual machine in a provider-hosted cloud (Figure 1 and 2) for the following uses:

- **Highly secure VPN gateway:** Route-based IP Security (IPsec) VPNs, Dynamic Multipoint VPN (DMVPN), Easy VPN, Secure Sockets Layer (SSL) VPN, and FlexVPN, along with the Cisco IOS Zone- Based Firewall and access control, enable an enterprise to connect distributed sites directly to its cloud deployment.

- **Multiprotocol Label Switching (MPLS) extension:** This MPLS customer-edge or provider-edge router enables a service provider to offer a customer end-to-end managed connectivity. Also, by extending the MPLS WAN deeper into the cloud, the provider can increase tenant scale.

Use cases

- **IP mobility and virtual-machine migration:** Locator/ID Separation Protocol (LISP) enables an enterprise to maintain addressing consistency when moving applications into the cloud. Overlay Transport Virtualization (OTV) enables an enterprise to extend Layer-2 VLANs from data center to cloud.

- **Traffic control and redirection:** The Cisco CSR 1000V includes networking services such as Hot Standby Router Protocol (HSRP) and Cisco Application Visibility and Control (AVC), enabling a cloud tenant to receive a comprehensive networking experience. IT can also redirect traffic to Cisco Virtual Wide Area Application Services (vWAAS) or Cisco WAAS appliances.

- **Virtual Extensible LAN (VXLAN) gateway:** You can expand network scalability by using VXLAN isolation instead of 802.1q VLANS.

Figure 1. Cisco CSR 1000V Positioned as a Secure Gateway in a Cloud Provider
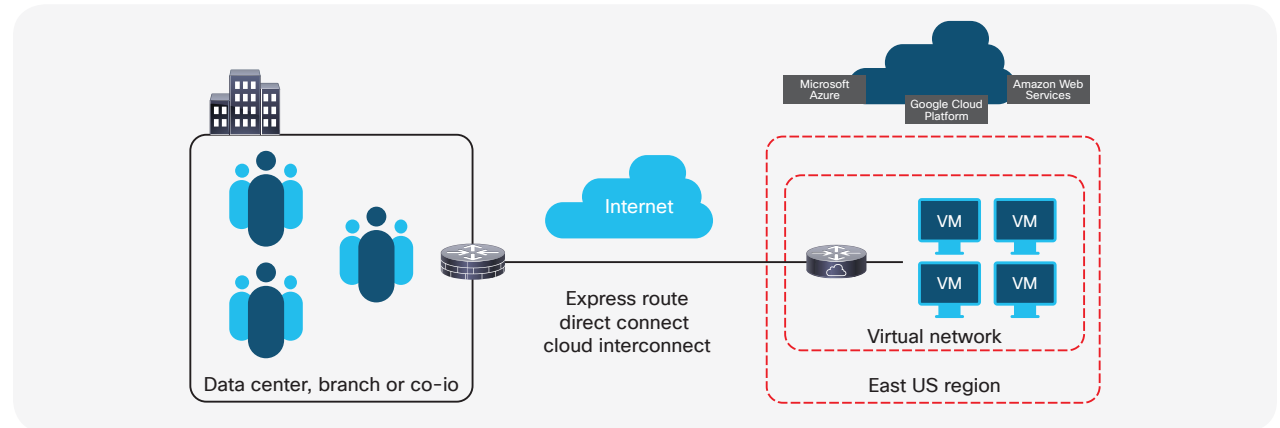
Features

- **Routing:** Border Gateway Protocol (BGP), Open Shortest Path First (OSPF), Enhanced Interior Gateway Routing Protocol (EIGRP), Policy-Based Routing, IPv6, Virtual Route Forwarding Lite (VRF-Lite), Multicast, LISP, and Generic Routing Encapsulation (GRE)

- **Addressing:** Dynamic Host Configuration Protocol (DHCP), Domain Name System (DNS), Network Address Translation (NAT), 802.1Q VLAN, Ethernet Virtual Connection (EVC), and VXLAN

- **VPN:** IPsec VPN, DMVPN, Easy VPN, SSL VPN, and FlexVPN

- **MPLS:** MPLS VPN, VRF, and Bidirectional Forwarding Detection (BFD)

- **Security:** Cisco IOS Zone-Based Firewall (ZBFW); access control list (ACL); authentication, authorization, and accounting (AAA); RADIUS; and TACACS+

- **High availability:** HSRP, Virtual Router Redundancy Protocol (VRRP), Gateway Load Balancing Protocol (GLBP), and box-to-box high-availability for ZBFW and NAT

- **Traffic redirection:** AppNav (to Cisco Wide Area Application Services [WAAS]) and Web Cache Communication Protocol (WCCP) application visibility, performance monitoring, and control: Quality of Service (QoS), AVC, and IP Service-Level Agreement (SLA)

- **Hybrid cloud connectivity:** OTV, Virtual Private LAN Service (VPLS), and Ethernet over MPLS (EoMPLS)

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Next steps

For more information about the Cisco CSR 1000v, visit https://cisco.com/go/csr1000v.

Try it free for 30 days on:

Amazon Web Services – https://aws.amazon.com/marketplace/pp/B00OCG4Q4E.

Microsoft Azure - https://azuremarketplace.microsoft.com/en-us/marketplace/apps/cisco.cisco-csr-basic-template.

- **Management:** Command-Line Interface (CLI), Secure Shell (SSH) Protocol, vManage (SD-WAN), NetFlow, Simple Network Management Protocol (SNMP), Embedded Event Manager (EEM), and RESTful application programming interfaces (APIs)

- **NFV:** Virtual route reflector (vRR), virtual broadband network gateway (vBNG), and virtual intelligent services gateway (vISG)

- The CSR 1000V can run on Cisco Unified Computing System™ (Cisco UCS®) servers or servers from leading vendors that support VMware ESXi, Citrix XenServer, Microsoft Hyper-V, Suse Linux KVM, or Red Hat KVM. The CSR 1000V is also offered on the Amazon Web Services cloud, Microsoft Azure cloud, and Google Cloud Platform

Figure 2. Cisco CSR 1000v Positioned as a Secure Transit Hub in AWS and Azure