



Cisco Cloud Services Router 1000V with Cisco IOS-XE® Software Release 3.10

DELIVERING ENTERPRISE-CLASS NETWORKING TO THE CLOUD WITH RAPID DEPLOYMENT AND FLEXIBILITY

The Cisco Cloud Services Router (CSR) 1000V is a router in virtual form factor that is intended for deployment in cloud data centers. It is optimized to serve as a single-tenant WAN gateway in a multi-tenant cloud. Using proven, industry-leading Cisco IOS® Software 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.

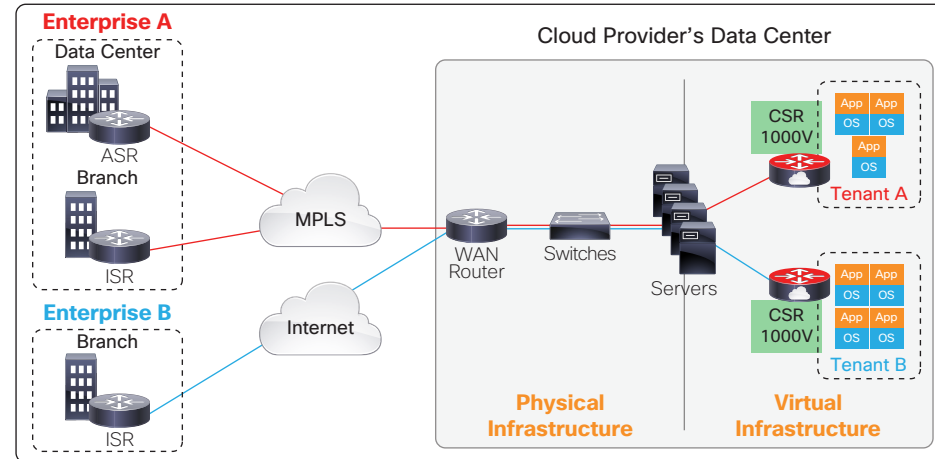
Use Cases

The Cisco CSR 1000V is a software router that an enterprise or a cloud provider can deploy as a virtual machine (VM) in a provider-hosted cloud (Figure 1).

You can use the Cisco CSR 1000V in the following ways:

- **Secure VPN Gateway:** The CSR 1000V offers route-based IPsec VPNs (DMVPN, EasyVPN, FlexVPN), along with the Cisco IOS® Zone-based Firewall and access control, enabling an enterprise to connect distributed sites directly to its cloud deployment.
- **MPLS Extension:** The CSR 1000V can serve as an MPLS Customer Edge (CE) or Provider Edge (PE) router that 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.
- **IP Mobility and VM Migration:** The CSR 1000V's LISP feature enables an enterprise to maintain addressing consistency when moving applications into the cloud. The CSR 1000V's OTV feature enables an enterprise to replicate VM workloads by extending VLANs from data center to cloud.
- **Traffic Control and Redirection:** The CSR 1000V can redirect traffic to Cisco vWAAS appliances. It also offers integrated networking services such as HSRP and Application Visibility & Control (AVC). These features enable a cloud tenant to receive a comprehensive networking experience.

Figure 1. Cisco CSR 1000V – Positioned as a Single-Tenant WAN Gateway in a Multi-tenant Cloud



Features

- **Selected Features of IOS-XE®:** The CSR 1000V offers the following Cisco IOS-XE® features:
 - **Routing:** BGP, OSPF, EIGRP, Policy-based Routing, IPv6, VRF-Lite, Multicast, LISP, GRE
 - **Addressing:** DHCP, DNS, NAT, 802.1Q VLAN, EVC
 - **VPN:** IPsec VPN, DMVPN, EasyVPN, FlexVPN
 - **MPLS:** MPLS VPN, VRF, BFD
 - **Security:** Cisco IOS® Zone-Based Firewall, ACL, AAA, RADIUS, TACACS+
 - **High Availability:** HSRP, VRRP, GLBP
 - **Traffic Redirection:** AppNav (to Cisco WAAS), WCCP
 - **Application Visibility, Performance Monitoring and Control:** QoS, AVC, IP SLA
 - **Hybrid Cloud Connectivity:** OTV, VPLS, EoMPLS
 - **Management:** CLI, SSH, NetFlow, SNMP, Embedded Event Manager, RESTful APIs
- **Infrastructure-Agnostic:** The CSR 1000V can run on Cisco UCS® servers or servers from leading vendors

that support VMware ESXi, Citrix XenServer or Red Hat KVM.

Benefits

- **Rapid Deployment and Service Automation:** Virtual form factor speeds up deployment and eliminates hardware costs such as truck rolls and RMAs.
- **Single-tenant Use:** Allows a cloud service provider to provision a routing instance per tenant, simplifying service delivery and tenant management. Also helps the provider overcome VLAN scale limits, increasing tenant scale.
- **Enterprise Network Extension to the Cloud:** Provides enterprises secure direct connections from their distributed sites to their cloud-hosted applications, improving application response time and user experience.
- **Network Consistency:** Uses familiar enterprise-class Cisco IOS® Software features for consistent network operation across premise and cloud, allowing the enterprise to view the cloud as just another node in its network.