



Secure Hybrid Workloads Over AWS Direct Connect with the Cisco CSR 1000V and Level 3 Cloud Connect Solutions

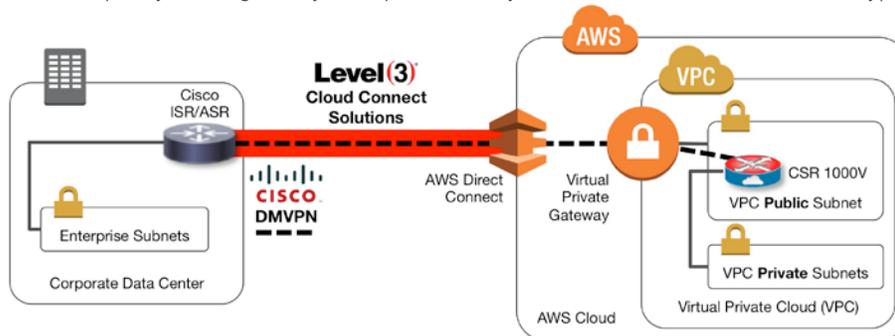
Secure, Private, Enterprise-Grade Connectivity for Your Amazon Web Services VPCs

Enterprises are deploying hybrid architectures more rapidly than ever, demanding network performance, security, and reliability on par with what they're accustomed to in private data centers. AWS combined with industry-leading vendors provides networking solutions for successful hybrid deployments.

Amazon Web Services (AWS) Direct Connect offers enterprises and government agencies private network connections between their locations and AWS, using an Amazon Partner Network (APN) network service provider such as Level 3 Communications. Direct Connect's private circuits provide dedicated connections and deterministic performance which are critical for latency sensitive applications, and can reduce costs below that of the public Internet for some large workloads.

AWS Direct Connect maps an 802.1q VLAN tag from a physical location, to a Virtual Interface within an AWS VPC. The BGP routing protocol is used to exchange routes between AWS VPCs and physical locations being connected.

The network is just one dimension of a multi-layered security strategy. In many cases, a private circuit physically separate from the public Internet offers adequate protection for the needs of a given organization. In others, business policy or regulatory compliance may necessitate the need to encrypt traffic for extra protection.



Cisco CSR 1000V

The Cisco Cloud Services Router 1000V (CSR 1000V) enhances routing, network services, and security in the Amazon Web Services (AWS) cloud. The Cisco CSR 1000V is based on Cisco IOS® XE Software, which powers cutting-edge routers including the Cisco ASR 1000 Series Aggregation Services Routers (ASR 1000) and Cisco 4400 Series Integrated Services Routers (ISRs), and represents decades of Cisco IOS Software development accelerated by innovation and customer demand.

One of the most important functions offered by IOS XE running on the CSR 1000V is the highly flexible Virtual Private Network (VPN) system. Cisco pioneered many of the commonly used VPN architectures and technologies in use today, allowing the CSR 1000V to be a natural extension to VPN deployments of any type. In the case of an AWS Direct Connect deployment, the CSR 1000V VPN features can be used to further secure the AWS Direct Connect circuits, at multi-gigabit speeds.

Securing Enterprise-Grade Hybrid Workloads

If not already deployed, install a Cisco ISR or ASR series router at each enterprise location. Establish a private circuit between these locations and AWS using Level 3 Cloud Connect Solutions and AWS Direct Connect Dedicated or Hosted Connection. Within the AWS VPC, provision Cisco CSR 1000V as the default route for all private subnets. Finally, initiate a VPN tunnel between the ISR/ASR and the CSR 1000V to encrypt all traffic traversing the AWS Direct Connect circuit. Once in place, the CSR 1000V may also be configured for any other desired network services.

Dedicated connections and deterministic performance eliminate the uncertainties associated with Internet based access. Multi-gigabit IPSec performance ensures that securing your cloud connectivity does not impact network performance. Finally, enjoy uniform network access worldwide from a network service provider who can provide right-sized network access anywhere it's required.

Why Choose Cisco, AWS, and Level 3 Communications?

- **Amazon Web Services:** Amazon Web Services provides a highly reliable, scalable, low-cost infrastructure platform in the cloud that powers hundreds of thousands of enterprise, government and startup customers businesses in 190 countries around the world.
- **Cisco CSR 1000V:** A full-featured Cisco IOS XE router available in the AWS Marketplace for use in Amazon VPCs. It is familiar to use, includes the entire IOS XE suite of features, and is backed by Cisco support.
- **Level 3 Cloud Connect Solutions:** Currently connected to AWS in more locations than any other network service provider, offering local connections to AWS globally, at any speed.

How to Deploy Cisco CSR 1000V in Amazon AWS for Direct Connect Security

For this solution, Cisco launched two new AMIs in the AWS Marketplace named CSR Direct Connect 1G and CSR Direct Connect Multi-Gig. Both are available on an annual or hourly basis.

CSR Direct Connect 1G: <https://aws.amazon.com/marketplace/pp/B00OCG4P90>

CSR Direct Connect Multi-Gig: <https://aws.amazon.com/marketplace/pp/B00OCG4R8Y>

Customers may also deploy the BYOL version of CSR for VPN over Level 3 Cloud Solutions. We recommend the BYOL for Maximum Performance version: <https://aws.amazon.com/marketplace/pp/B00NF48F12>

For More Information

- Learn more about the Cisco CSR 1000V: <http://cisco.com/go/cloudrouter>
- Learn more about Level 3 Cloud Connect Solutions and AWS Direct Connect: <http://www.level3.com/awsdirectconnect>



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