SD-WAN Capabilities

This chapter describes the SD-WAN capabilities supported in the management center.

Overview of SD-WAN Capabilities

Software-Defined WAN (SD-WAN) solutions replace traditional WAN routers and are agnostic to WAN transport technologies. SD-WAN provides dynamic, policy-based, application path selection across multiple WAN connections and supports service chaining for additional services such as WAN optimization and firewalls.

As organizations expand their operations across multiple branch locations, ensuring secure and streamlined connectivity becomes paramount. Deploying a secure branch network infrastructure involves complex configurations, which can be time-consuming and prone to security vulnerabilities if not handled properly. However, organizations can overcome these challenges by leveraging the Cisco Secure Firewall Management Center (management center) and the Cisco Secure Firewall Threat Defense (threat defense) devices for a simplified and secure branch deployment.

In this guide, we explore the concept of simplifying secure branch deployment using a robust firewall solution. By integrating a secure firewall as a foundational component of the branch network architecture, organizations can establish a strong security baseline while simplifying the deployment process. This approach enables organizations to enforce unified security policies, optimize traffic routing, and ensure resilient connectivity.

Some of the SD-WAN capabilities supported on the Cisco Secure Firewall are:

- **Simplified management:**
  - SASE: Umbrella auto tunnel deployment
  - Dynamic VTI (DVTI) hub spoke topology simplification
- **Application awareness:**
  - Direct Internet Access (DIA) for public cloud and guest user
  - Policy based routing (PBR) using applications as a match criteria
  - Local tunnel ID support for Umbrella

- **Increased usable bandwidth:**
  - ECMP support for load balancing across multiple ISPs and VTIs
  - Application-based load balancing using PBR
- **High availability with near zero network downtime:**
  - Dual ISP configuration
  - Optimal path selection based on application-based interface monitoring.
- **Secure Elastic Connectivity:**
  - Route-based (VTI) VPN tunnels between headquarters (hub) and branches (spokes)
  - IPv4 and IPv6 BGP, IPv4 and IPv6 OSPF, and IPv4 EIGRP over VTI
  - DVTI hubs that support spokes with static or dynamic IP

Features

The following table lists some commonly used SD-WAN features:

Feature	Introduced in	More Information
Application monitoring using SD-WAN Summary dashboard	Release 7.4.1	SD-WAN Summary Dashboard
SD-WAN Summary Dashboard	Release 7.4	SD-WAN Summary Dashboard
Policy-based routing with user identity and SGTs	Release 7.4	Policy Based Routing
Policy-based routing using HTTP path monitoring	Release 7.4	Policy Based Routing
Loopback interface support for VTIs	Release 7.3	Configure a Loopback Interface
Support for dynamic VTI (DVTI) with site-to-site VPN	Release 7.3	Dynamic VTI
Umbrella auto tunnel	Release 7.3	Deploy a SASE Tunnel on Umbrella
Support for IPv4 and IPv6 BGP, IPv4 and IPv6 OSPF, and IPv4 EIGRP for VTIs	Release 7.3	BGP, OSPF, EIGRP
Route-based site-to-site VPN with hub and spoke topology	Release 7.2	Create a Route-based Site-to-Site VPN

Feature	Introduced in	More Information
Policy-based routing with path monitoring	Release 7.2	Policy Based Routing
The Site to Site VPN Monitoring Dashboard	Release 7.1	Monitoring the Site-to-Site VPNs
Direct Internet Access/Policy Based Routing	Release 7.1	Policy Based Routing
Equal-Cost-Multi-Path (ECMP) zone with WAN interfaces	Release 7.1	About ECMP
ECMP zone with VTI interfaces	Release 7.1	About ECMP
Backup VTI for route-based site-to-site VPN	Release 7.0	Route Traffic Through a Backup VTI Tunnel
Support for static VTI (SVTI) with site-to-site VPN	Release 6.7	Static VTI

Use Cases for SD-WAN Capabilities

- Simplify Branch to Hub Communication using Dynamic Virtual Tunnel Interface (DVTI)
- Route Application Traffic from the Branch to the Internet Using Direct Internet Access (DIA)
- Secure Internet Traffic Using Umbrella Auto Tunnel