Intelligent WAN Design Summary

September 2017

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IWAN Introduction

The Cisco IWAN solution provides design and implementation guidance for organizations looking to deploy WAN

Use Case: Scale and High Availability

This design helps organizations scale their IWAN deployments beyond a single hub border router per DMVPN. It also provides high availability for hub site locations.

This design enables the following capabilities:

BUSINESS USE CASES FOR THE IWAN APPL

The following use cases are supported by the IWAN application.

Use Case: Hub Deployment (I-Block methodology)

IWAN Architecture

With the advent of globalization, WANs have become a major artery for communication between remote of ces and customers in any corner of the world. Additionally, with data center consolidation, applications are moving to centralized data centers and clouds. WANs now play an even more critical role, because business survival is dependent on the availability and performance of the network.

Until now, the only way to get reliable connectivity with predictable performance was to take advantage of a private WAN using MPLS or leased line service. However, carrier-based MPLS and leased line services can be expensive and are not always cost-ef ective for an organization to use for WAN transport in order to support growing bandwidth requirements for remote-site connectivity. Organizations are looking for ways to lower operating budget while adequately providing the network transport for a remote site.

In all of the WAN-aggregation designs, tasks such as IP route summarization are performed at the distribution layer. There are other various devices supporting WAN edge services, and these devices should also connect into the distribution layer.

The characteristics of each design are discussed in the following sections.

IWAN Hybrid Design Model

IWAN Dual Hybrid with PLR Design Model

This advanced design adds multiple WAN transports to any of the previous design models. The multiple transport design model is not limited to two MPLS, two Internet and one PLR transport, but this specif c design will be used to discuss the underlying principles. The same concepts can be applied to other multiple transport designs.

Figure 11   *WAN aggregation: IWAN dual hybrid with PLR design model*

Figure 18 *IWAN dual router remote-site: Connection to distribution layer*

Figure 21   *Hub Router QoS scheduling hierarchy*

Parent Shaping
Policies on Tunnel

Bandwidth Sharing
Between Tunnels

Shape for Remote Site

With the advances in EIGRP, this guide uses EIGRP named mode. The use of named mode EIGRP allows related EIGRP configurations to be centrally located in the configuration. Named mode also supports wide metrics for larger multi-gigabit links. For added security, EIGRP neighbor authentication has been implemented to prevent unauthorized neighbor associations.

Tech Tip

the **ip tcp adjust mss [size]** command on the WAN routers, which infuences the TCP maximum segment size (MSS) value reported by end hosts.

The MSS defnes the maximum amount of data that a host is willing to accept in a single TCP/IP datagram. The

Figure 25   *Front door VRF*

Figure 26   *IWAN hybrid design model: FVRF default routing*

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