Configuring and Monitoring IWAN

Cisco Intelligent WAN (IWAN) is a system that enhances collaboration and cloud application performance while reducing the operating cost of the WAN. This system leverages low-cost, high-bandwidth Internet services to increase bandwidth capacity without compromising the performance, availability, or security of cloud-based applications. Organizations can use IWAN to leverage the Internet as WAN transport, as well as for direct access to Public Cloud applications. For more information on Cisco IWAN, see the Cisco Intelligent WAN (IWAN) Design Guide.

Prime Infrastructure positions the IWAN wizard workflow mostly for green field customers where the IWAN services need to be enabled for the first time. The enabled IWAN service cannot be modified for brown field customers. But customers can always overwrite the last-configured service by rewriting any of these services on required sites.

You can use Prime Infrastructure to design, configure, and monitor the IWAN services for an enterprise. Cisco IWAN requires the configuration of DMVPN, PFR, AVC and QOS as part of enabling IWAN services on different devices.

Prerequisites for Enabling IWAN Services

When designing or deploying IWAN services, configurations need to be decided. A network administrator needs to plan the branches on which the IWAN has to be enabled or reconfigured. In Prime Infrastructure, you can access a set of CVD validated out of the box IWAN templates by navigating to **Configuration Templates > Features & Technologies > Feature Templates**. All the templates under this feature technology are tagged "IWAN", and any new template that a user creates will automatically carry this tag and will appear in the IWAN workflow.

The tags that are automatically used for the templates are as follows:

- DMVPN: IWAN-DMVPN
- PFR: IWAN-PFR
- QOS: IWAN-QOS
- AVC: IWAN-AVC

The tags that are used for the IWAN Hub and IWAN Branch Categories based on the Device roles are as follows:

- Hub Category:

    - Master Controller: IWAN-HUB-Master-Controller

    - MPLS Hub: IWAN-HUB-MPLS

    - Internet Hub: IWAN-HUB-Internet

- Branch Category

    - Single Router Branch: IWAN-Branch-Single-Router

    - Dual Router Branch-MPLS: IWAN-Branch-Dual-MPLS

    - Dual Router Branch-Internet: IWAN-Branch-Dual-Internet

Users can create their own templates from the bundle templates or modify the out of the box design templates, which can be recreated from the CVD templates and displayed in the IWAN workflow.

Therefore, enabling the complete IWAN services through Prime Infrastructure is done based on two categories, SITE and ROLE. SITE can be HUB or SPOKE, and ROLE can be X, Y, Z, and so on. Depending on this selection, the templates will be organized and displayed in sequence for users to fill in the values. At the end of the workflow, the summary of the configurations to be deployed on the network is displayed. When the **Deploy** button is clicked, the configurations are pushed to the network.

Important Notes

- Ensure that the interface loopback 0 IP address is configured on all Master Controllers before deployment.

- The loopback IP of the Master Controller should be permitted in the DC-LOCAL-ROUTES prefix-list in HUB-Border-MPLS and HUB-Border-Internet routers for Border routers to reach MC.

Example:

```
ip prefix-list DC-LOCAL-ROUTES seq 40 permit <MC loopback0 ip>/32
```

- The DC_Prefix1 field in CVD-DMVPN-MPLS and CVD-DMVPN-Internet templates should match the DC subnet. If there is more than one subnet in DC, then the suffix "le 32" can be used to include all the subnets.

Example:

    - Subnet A–172.29.10.0/30

    - Subnet B–172.29.10.4/30

    - Subnet C–172.29.10.8/30

    - DC_Prefix1(x.x.x.x/x)–172.29.10.0/24 le 32

- In CVD-DMVPN, CVD-DMVPN-Dual-Internet, and CVD-DMVPN-Dual-MPLS templates, the subnet mask of the Loopback interface needs to be entered in the Loopback-Subnet field.

- %IPSEC-3-REPLAY_ERROR: IPSec SA receives an anti-replay error.

If this error message is seen on the HUB-Border-MPLS router, you may be able to resolve this by increasing the window size.

Example:

```
crypto ipsec security-association replay window-size 1024
```

Using the IWAN Wizard

Prime Infrastructure provides a wizard to help you design and deploy IWAN services. Before configuring IWAN services, refer Prerequisites for Enabling IWAN Services.

Step 1   Select **Services > IWAN**.

Step 2   Click **Next** to choose the configuration.

Step 3   Select a category to deploy IWAN:

- Branch

- Hub

Step 4   Select the features you wish to configure, then click **Next**.

Step 5   Select the devices on which you want to configure the specified features. To configure IWAN on multiple branches at the same time, select multiple devices and enter the values for the variables for each.

Step 6   Depending on the features you selected to configure in Step 4, the wizard guides you through entering the necessary values.

The templates are configured as part of the IWAN wizard, and you can access them by navigating to **Configuration > Templates Features & Technologies > Feature Templates**.

Note   Post deployment, ensure that you enable routing between Master Controllers and Hub Border Routers and include the subnet of the loopback 0 interface as part of the routing domain.