Automate Leaf Configs using LeafBuilder (CVP Configlet Builder)

Version 5.2

What is LeafBuilder?

It's a CVP Configlet builder which helps building Leaf device configs based on inputting few parameters. The objective is to make Leaf Spine topology a template and use this Builder to config each of the Leaf Switches without manually configuring each one of them. Currently, it creates config for Leaf Spine Interface/IP config, BGP , MLAG configs , VXLAN, Underlay/Overlay SVIs, VRF, EVPN configs etc.

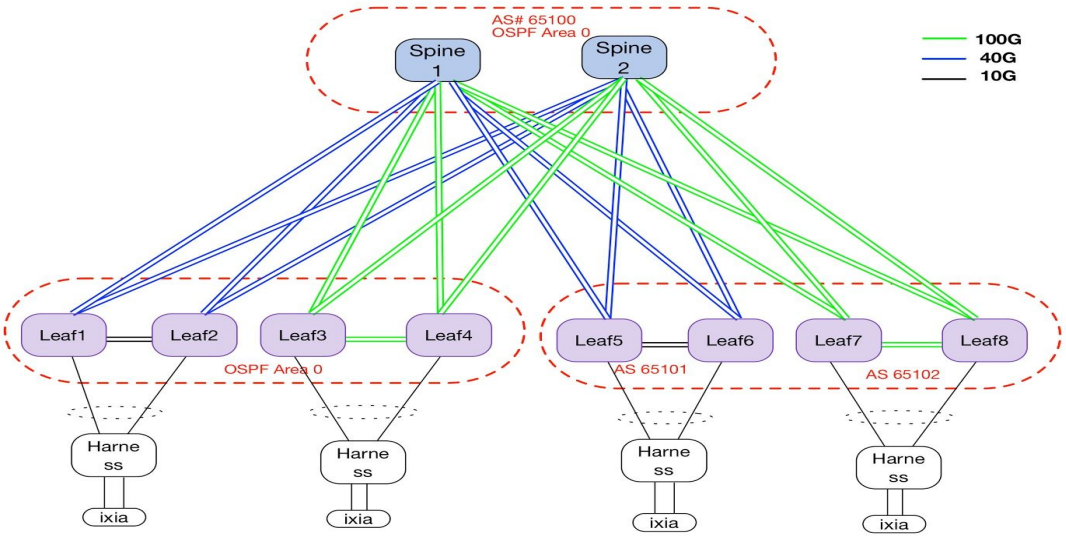
Why do we need this?

It helps in building complex leaf device configs with BGP/OSPF (as Leaf Spine protocols, MLAG, Vxlan, EVPN etc) in matter of few seconds without having to manually configure each leaf device.

Where can you use this?

Anywhere with Leaf Spine topology scaling > 2 PODs which requires manual config of Leaf Spine protocols, IP addresses, MLAG on all the Leaf switches. You can use it for <2 PODs as well, but, you could probably do that easily with manual config as well given the number of Leaf switches are less.

See the sample topology where i have used this LeafBuilder to configure the Leaf switches. I had 8 leaf switches which requires, Leaf Spine Interface configs, BGP config, MLAG config etc. All of that was done using this LeafBuilder simply providing only 8 inputs in the LeafBuilder form. (please see below form with filled details)



LeafBuilder Requirements/Installation

What do you need in order to use this LeafBuilder configlet builder?

- CVP with latest version
- Download/extract netaddr python package source “netaddr-0.7.10.tar.gz” and “tar zxvf netaddr-0.7.10.tar.gz”.
- Install netaddr package “cd <netaddr-0.7.10>, python setup.py install”
- Create symlink in CVP Python library package for netaddr “ln -s /usr/lib/python2.7/site-packages/netaddr /cvpi/pythonlab/Lib/netaddr”

LeafBuilder Limitations and Work in Progress

1. Current version supports leaf Spine IP, BGP/OSPF , MLAG Peer links, Port-channels towards Harness switch and SVIs with scale
2. Current version does not support VXLAN scale, but, this work in progress and will be updated soon
3. Current version does not support generating Leaf configs for all the switches in the Leaf container in one shot , as this requires CVP to be able to generate the config in specific order

Getting Started with LeafBuilder

Steps to use the LeafBuilder

1. Design your topology with IP addresses/connections as per the xls template (if you have changed connections/IP addresses, you may need to edit this LeafBuilder script to adjust accordingly.
2. Import this LeafBuilder into your CVP node using CVP Configlet Import option
3. Go to Network Provisioning view,
    a. You can selectively run this LeafBuilder for each Leaf switch
    b. Fill the form with leaf-spine config details as per the template you have designed in Step 1 above for each switch
4. Once LeafBuilder generates the config and the same can be applied by running the task created

Description of LeafBuilder Fields

1. Devices - Select the switch you want to generate config for (by default all switches will be selected, make sure to deselect the rest and select only the specific leaf switch you are generating config for)
2. Leaf Spine Protocol - Radio button to select OSPF or BGP
3. Switch Number - As per the sample topology above, pick up the switch position based on where it is placed (e.g Leaf1=1 and Leaf2=2 , Leaf 8=8 or more)
4. Loopback0 address - Lo0 IP address of Leaf switch being configured
5. BaseVLAN - Starting VLAN ID for the SVIs being created on the Leaf switch
6. Number of Vlans - Number of vlans/SVIs from BaseVLAN to be created
7. Peer Link IP address - MLAG Peer Link IP address (remote peer IP address computed automatically)
8. SVI Base IP - Starting IP addresses to be used for SVIs created in step 5 & 6 (based on SVIs, IP addresses for scaled SVIs will be automatically generated)
9. Spine Link Base IP Address - IP address for the Leaf to Spine interfaces

Assumptions

- LeafBuilder assumes the interfaces for Leaf Spine/MLAG peer links, Leaf to Harness switches etc. and subnet mask for IP addresses provided. If you want to change those, you need to edit the LeafBuilder script to change the same in appropriate section