

Markley Network Fabric Reference Architecture

Architecture #1: Layer 2 to Cloud Service Providers with Markley DIA

The **Markley Network Fabric (MNF)** supports a number of configuration options for customers to choose from. Selecting the appropriate design will depend on your goals. We have provided a number of reference architectures to help guide your decision-making.

This example illustrates the simplest of configuration options, representing layer 2 connectivity between you and the MNF, on top of which you configure layer 3 connectivity between your endpoints and various cloud service providers (CSPs).

Layer 1 Summary

Each unique CSP connection (including Markley DIA or Boston Internet Exchange [BOSIX] access) are assigned distinct VLAN IDs across both of your devices. The MNF trunks your VLANs across our network, splitting out each VLAN to their associate CSP access point.

Each connection may optionally be configured as part of a LAG. This allows you to expand seamlessly in the future by simply adding LAG members for each connection. LACP fast/active is used in this scenario. Each connection is a part of their own single-member LAG.

Layer 3 Summary

You are responsible for configuring your devices to peer with each CSP you have connectivity to, typically via BGP

- Example: AWS
- Example: Microsoft Azure ExpressRoute
- Example: Google Cloud

For Markley DIA, we will assign peering IPs, with the following configuration options:

BGP peering with Markley

- Public or private peering IPs
- Advertise your own ASN + prefix to Markley to advertise to our upstream providers (LOA required)

Default route or full Internet routing table is sent to you

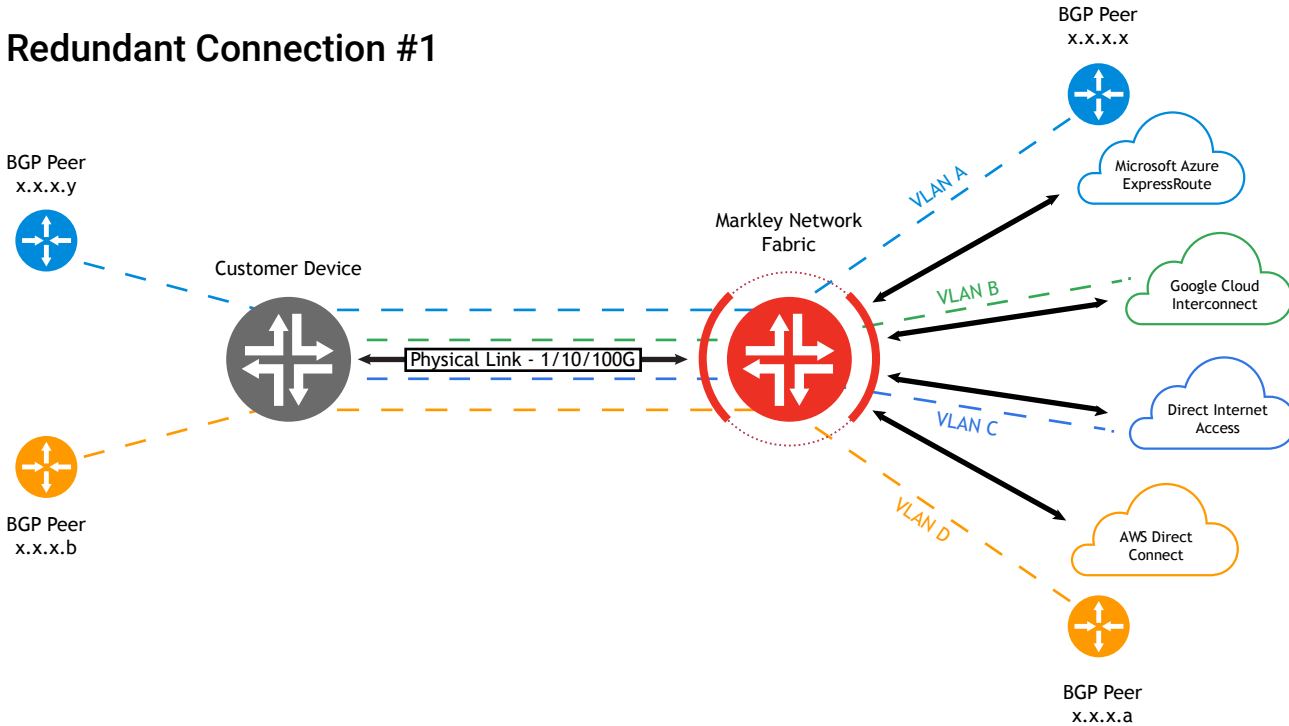
Static configuration, simply using our endpoint address as your default gateway

- /31 IP block assigned (or /30 if your device doesn't support it), with larger blocks available (may require IP justification)
 - Larger IP blocks can be temporarily assigned to your company, useful for peering with some providers such as AWS DirectConnect for use with their public VIFs

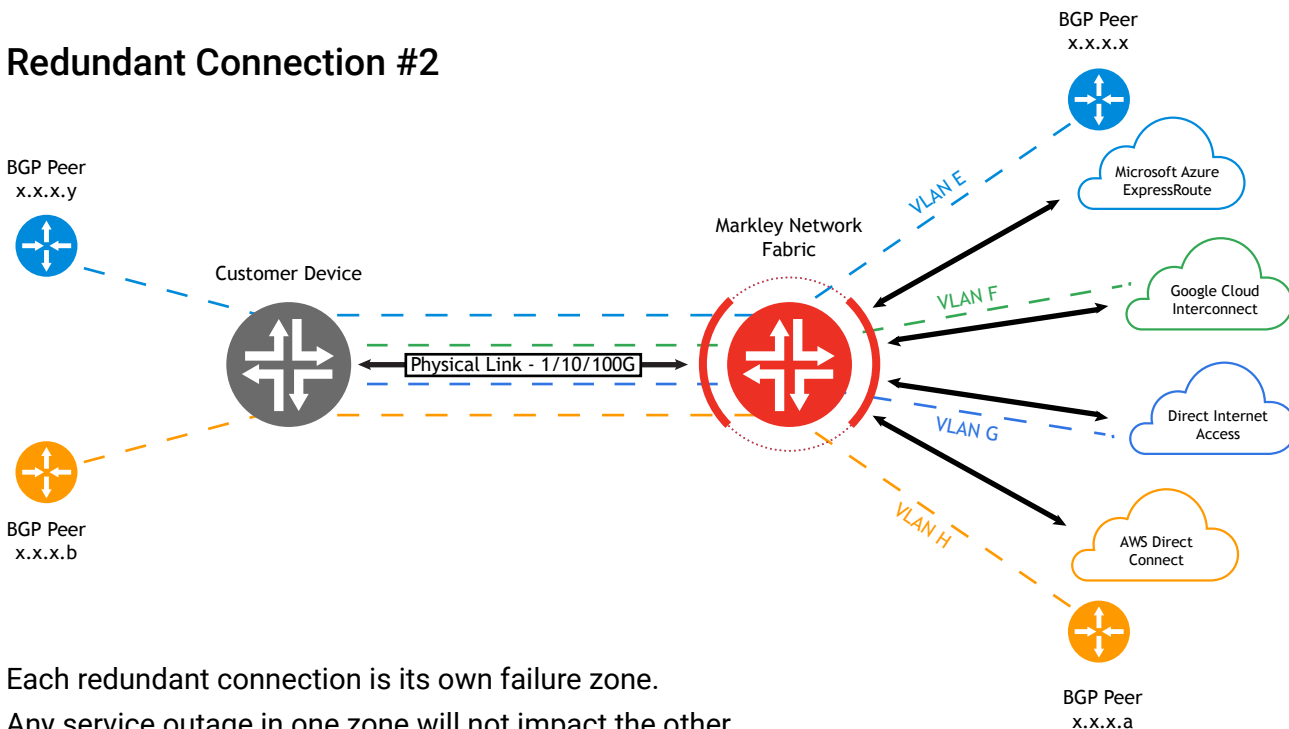
Topology

In the below topology example, the two redundant connections to the Markey Network Fabric are given, with layer 2 connections to Microsoft Azure ExpressRoute, Google Cloud, and AWS DirectConnect provisioned. A layer 3 connection to Markley for DIA is provisioned. Additional CSP connections may be provisioned, such as to Oracle OCI, Salesforce, IBM Cloud, the Boston Internet Exchange, or more. Over 100 cloud providers are available.

Redundant Connection #1



Redundant Connection #2



Each redundant connection is its own failure zone. Any service outage in one zone will not impact the other.

Customer Configuration Summary

Connections may be provisioned as 1, 10, or 100G Ethernet ports, or a combination of those speeds configured as individual, single-member LAGs (such as 2, 30, 200G, etc.), which allows for ease of future scalability.

Configuration Summary				
Customer Device #1	Services	Layer 1	Layer 2	Layer 3
	ExpressRoute	SMF, LC	VLAN [A]	-
	Google Cloud	SMF, LC	VLAN [B]	-
	AWS DirectConnect	SMF, LC	VLAN [D]	-
	DIA	SMF, LC	VLAN [C]	Public/Private, assigned by Markley
		BGP		Optional
		Route Table		Default/Full

Configuration Summary				
Customer Device #2	Services	Layer 1	Layer 2	Layer 3
	ExpressRoute	SMF, LC	VLAN [E]	-
	Google Cloud	SMF, LC	VLAN [F]	-
	AWS DirectConnect	SMF, LC	VLAN [H]	-
	DIA	SMF, LC	VLAN [G]	Public/Private, assigned by Markley
		BGP		Optional
		Route Table		Default/Full