Since the spokes are peered with the hub VNet without the "Use Remote Gateways" and "Allow Gateway Transit" VNet peering options, the spokes will not learn these routes (neither the SDWAN prefixes nor the ExpressRoute prefixes). To propagate routes to the spokes the NVA leverages a second Azure Route Server 2, deployed in a new auxiliary VNet.

As we know, vNet peering is Non-Transitive – which means, even though SPOKE 1 is peered with the HUB network and the HUB is peered with SPOKE 2, this does not enable automatic communication between SPOKE 1 and SPOKE 2

Recently, I was working on a solution for a customer where they wanted to implement a Hub-Spoke virtual network topology that enabled the HUB to communicate with its Spoke networks via vNet Peering. They also required the SPOKE networks to be able to communicate with each other but peering between them was NOT allowed.

Drawing1

As we know, vNet peering is Non-Transitive – which means, even though SPOKE 1 is peered with the HUB network and the HUB is peered with SPOKE 2, this does not enable automatic communication between SPOKE 1 and SPOKE 2 unless they are exclusively peered which in our requirement we were not allowed to do.

So, let’s explore a couple of options on how we can enable communication between the Spoke networks without peering.

Solutions

There are several ways to implement Spoke to Spoke communication, but in this blog I’d like to provide details of the 2 feasible options that worked for us.

Option 1– is to place a Network Virtual Appliance (NVA) basically a Virtual Machine with a configured firewall/router within the HUB and configure it to forward traffic to and from the SPOKE networks.

If you search the Azure Market Place with the keywords “Network Virtual Appliance“, you will be presented with several licensed products that you could install and configure in the HUB network to establish this communication. Configuration of these virtual appliances varies and installation instructions can easily be found on their product websites.

Option 2- is to have a Virtual Network Gateway attached to the HUB network and make use of User Defined Routes, to enable communication between the SPOKES.

The above information was sourced from this very helpful blog post.

The rest of this blog is a detailed step by step guide and the testing performed for implementing the approach mentioned in Option 2.

[Hub-Spoke communication using vNet Peering and User Defined Routes – Kloud Blog](https://blog.kloud.com.au/2018/08/10/hub-spoke-communication-using-vnet-peering-and-user-defined-routes/)

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