



CCIE Enterprise Infrastructure v1.0 Bootcamp

DMVPN



DMVPN & IPsec

- + Core DMVPN Goals
 - + Establish underlay IPv4/IPv6 reachability between hubs and spokes
 - + Establish overlay tunnel reachability between hubs and spokes
 - + Optionally run IPsec over DMVPN

DMVPN Underlay Transport Considerations

- + DMVPN is a unicast GRE tunnel
 - + Implies IP over GRE reachability needed between hubs and spokes
- + DMVPN w/ IPsec is a unicast GRE over ESP tunnel
 - + Implies ISAKMP (UDP port 500) reachability
 - + Implies ESP (IP protocol 50) reachability
- + DMVPN w/ IPsec through NAT is a unicast UDP tunnel
 - + Implies ISAKMP (UDP port 500) reachability
 - + Implies NAT-T (UDP port 4500) reachability

DMVPN Overlay Considerations

- + Overlay and Underlay protocol cannot be the same
 - + Result is recursive routing failure
- + Overlay protocol cannot advertise underlay routes
 - + Result is recursive routing failure

DMVPN Workflow w/IPsec

- + Establish ISAKMP SA between spoke and hub
 - + **show crypto isakmp sa**
- + Establish IPsec SA between spoke and hub
 - + **show crypto ipsec sa**
- + Establish NHRP registration from spoke to hub
 - + **show dmvpn**
 - + **show ip nhrp**
- + Establish overlay routing
 - + Which DMVPN Phase?
 - + Next-hop considerations?

