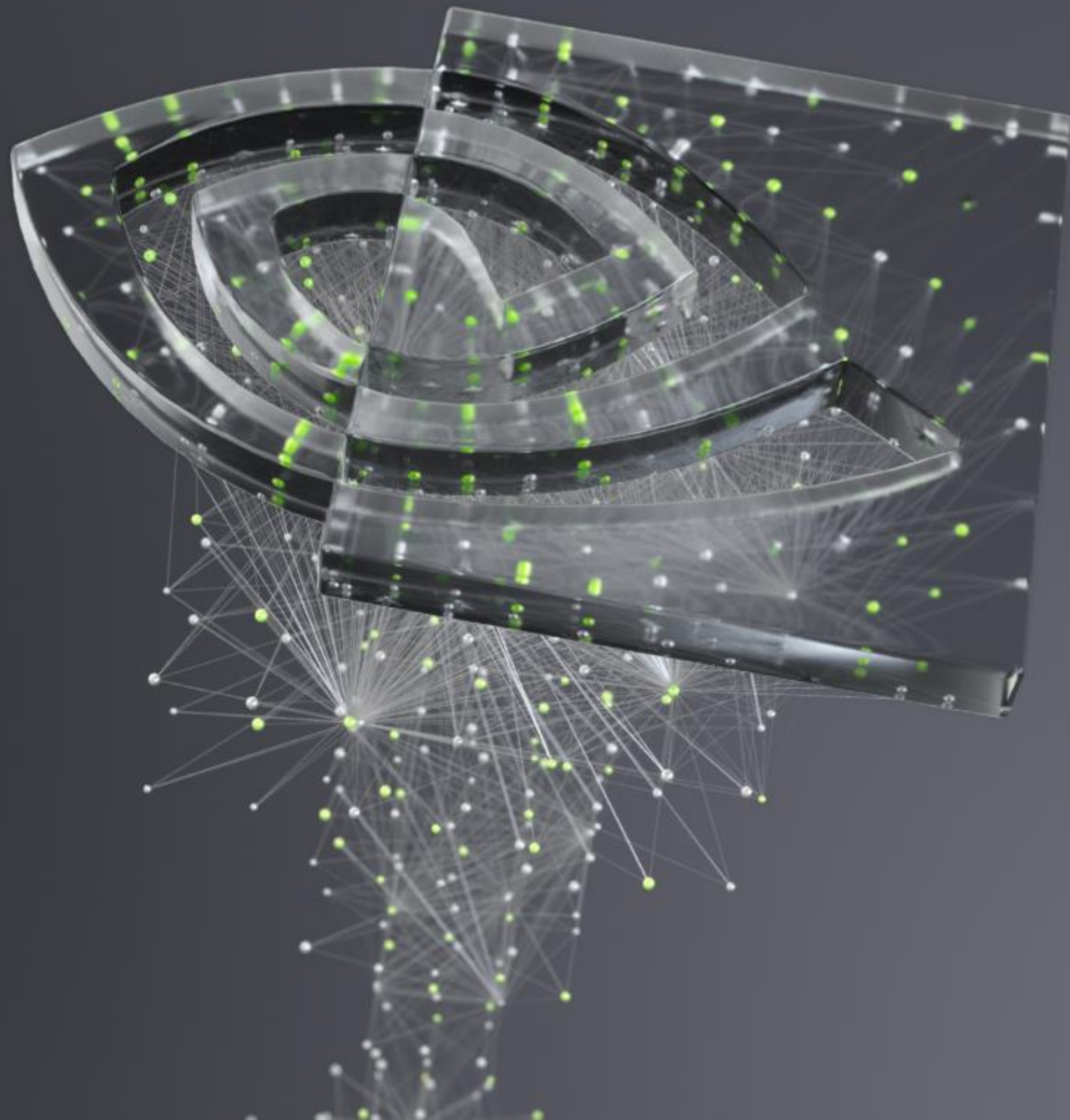




**NVIDIA**

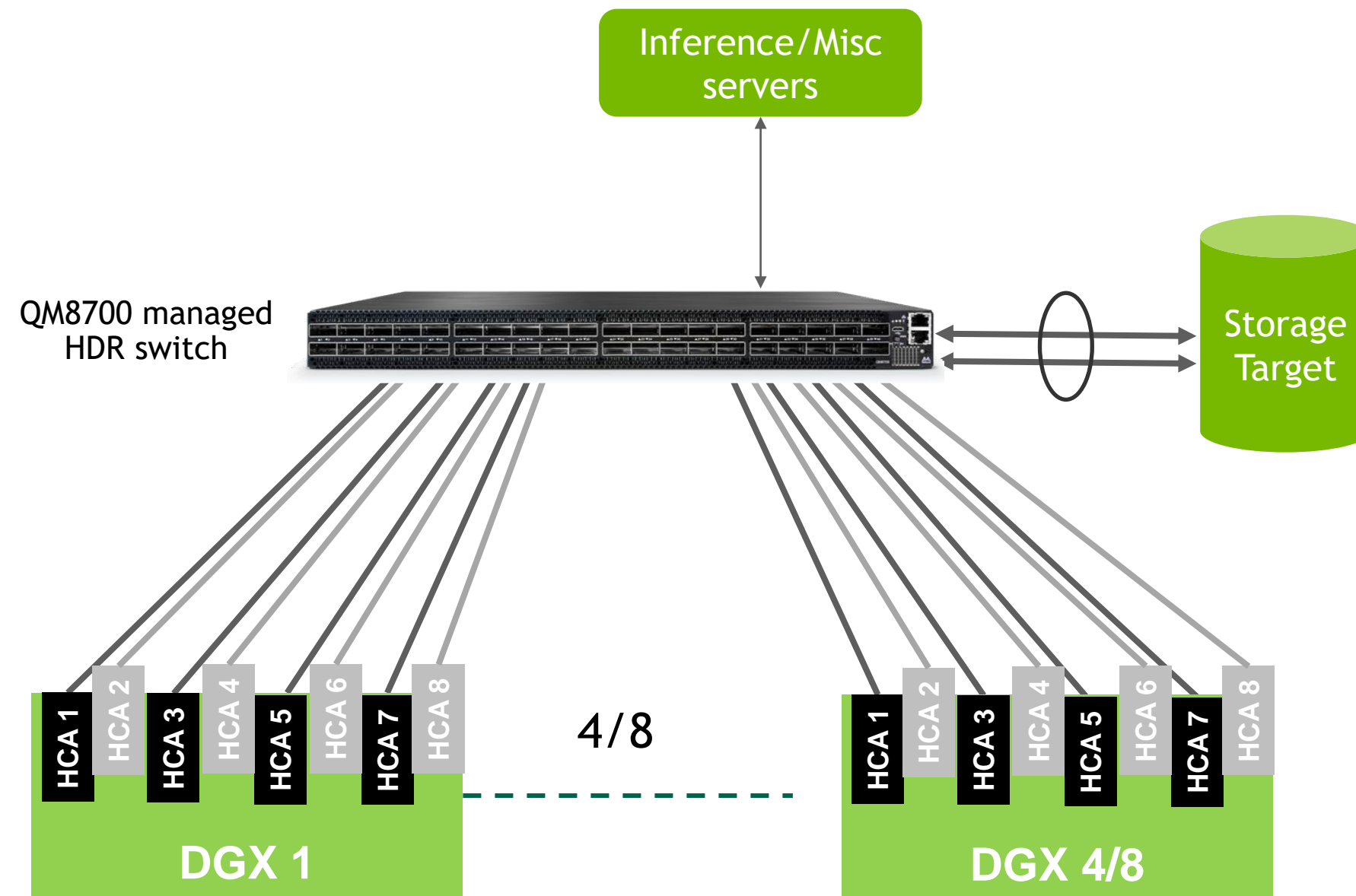
# ACCELERATE YOUR TENSORFLOW WITH NVIDIA RDMA

Small DGX cluster RA



# BASE NETWORK

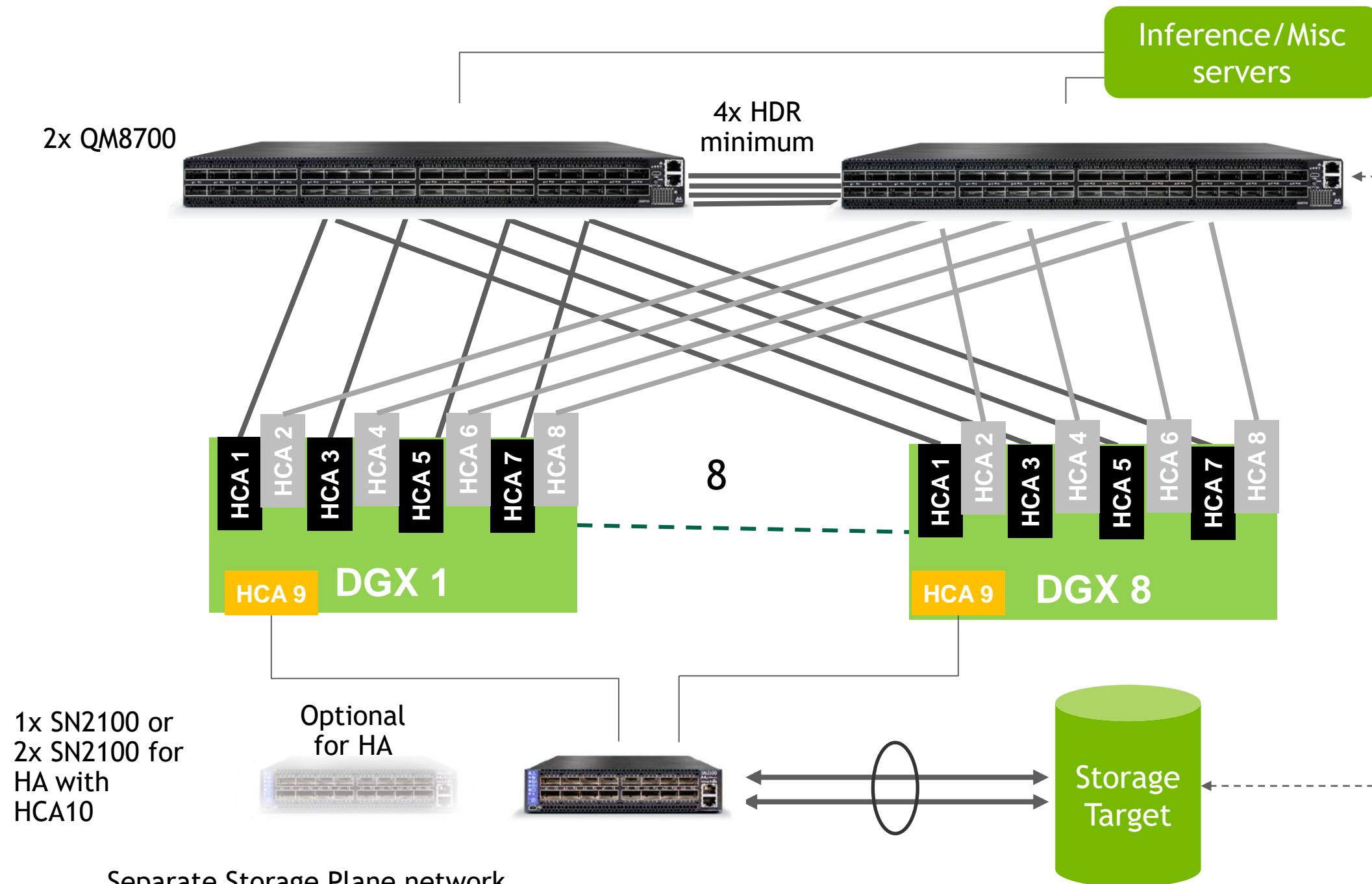
## {#1} InfiniBand 2-8 DGX-A800 no HA



- QM8700 -> 40p HDR Quantum switch (managed)
- 2-8x DGX with quad-rail connectivity
- 2-4x DGX with all 8-rails
- 2-4x HDR/EDR storage connectivity (up-to 8x HDR100 with port-split)  
**is it good enough?**
- 4x HDR/EDR or 8x HDR100 ports available for management, inference, misc servers
- Switch config needed
  - --None--
  - **No SHARPV2 support**

# 8X RAILS + HA

## {#3} InfiniBand 2-8 DGX-A800 with HA



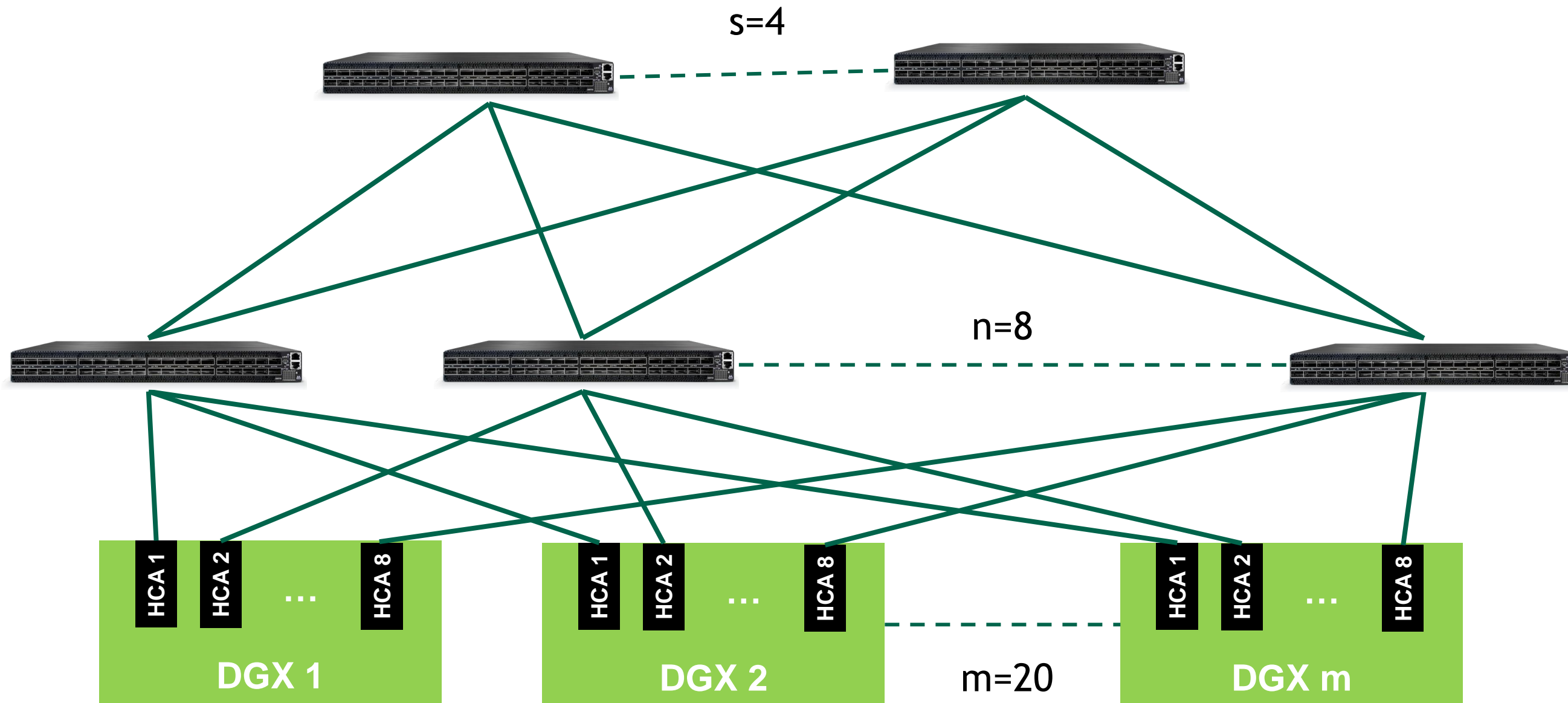
- 2x QM700 -> 40p HDR Quantum switch for main network (redundant SM)
- 2-8x DGX with full 8-rail connectivity
- (4+4)x HDR/EDR or (8+8)x HDR100 ports available for management, inference, misc servers - **can be reduced to allow more links between the switches**
- **Blocking ratio between switches depends on number of DGXs**
- These ports can also be used for directly interfacing to IB storage
- No SHARP
- Storage HA
  - Storage: None for single Eth; MLAG for storage HA

Separate Storage Plane network  
 Mellanox 2x SN2100 for HA recommended. Or  
 connect to existing 3<sup>rd</sup> party switch storage network



# LARGER NETWORKS {STICK TO POD/SUPER-POD ARCH}

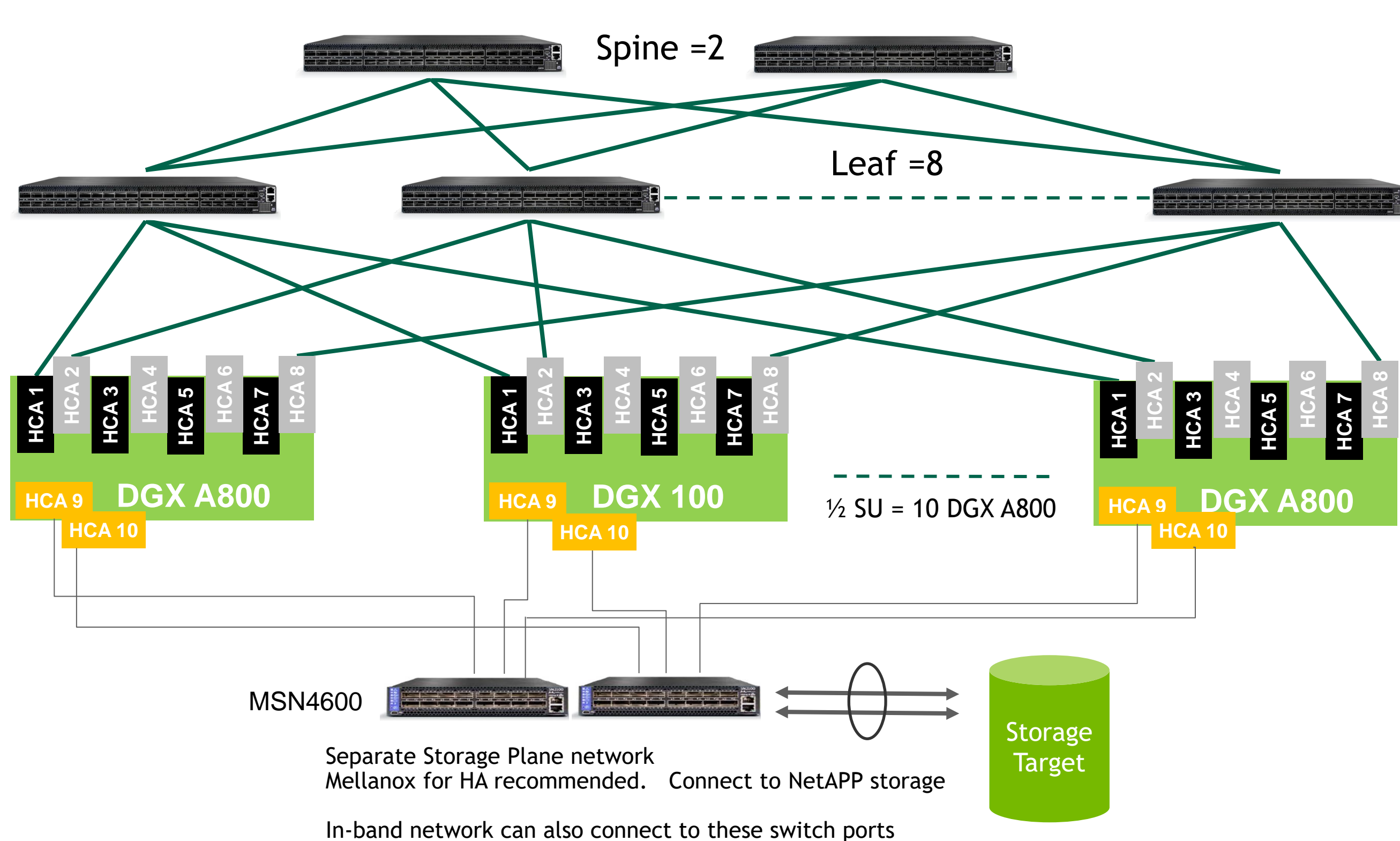
## {#6} InfiniBand 8x Rails + SHARPV2



- 2x QM8700 managed and 10x QM8970 unmanaged
- Recommendation is to go non-blocking
- Ideal solution for users starting with 8+ DGX-A800 and looking to scale to 20

# 10 DGX A800 NETWORK

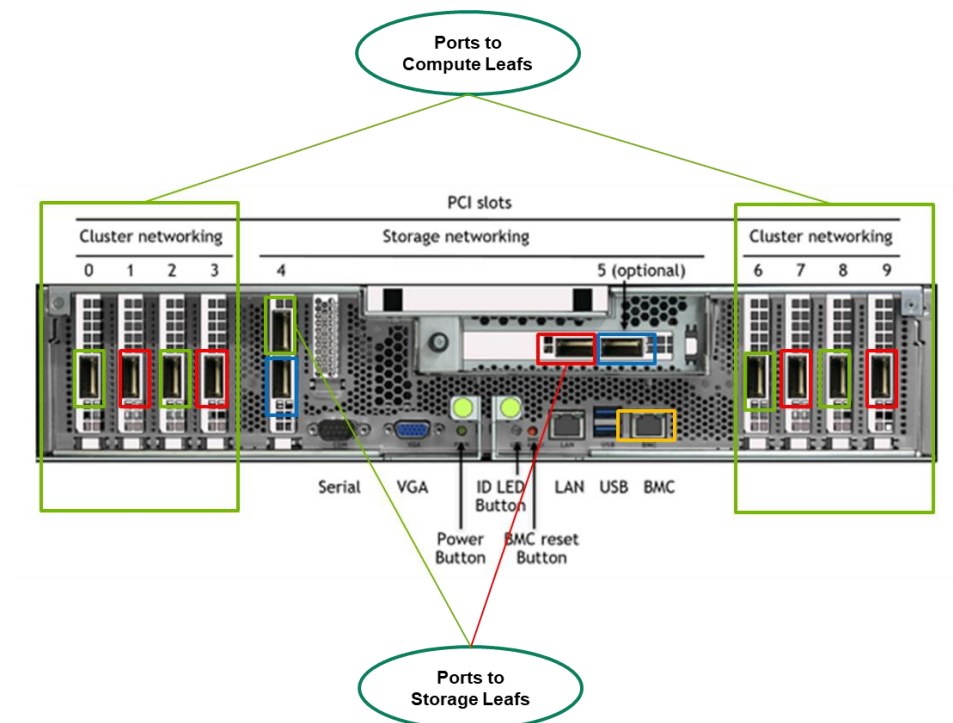
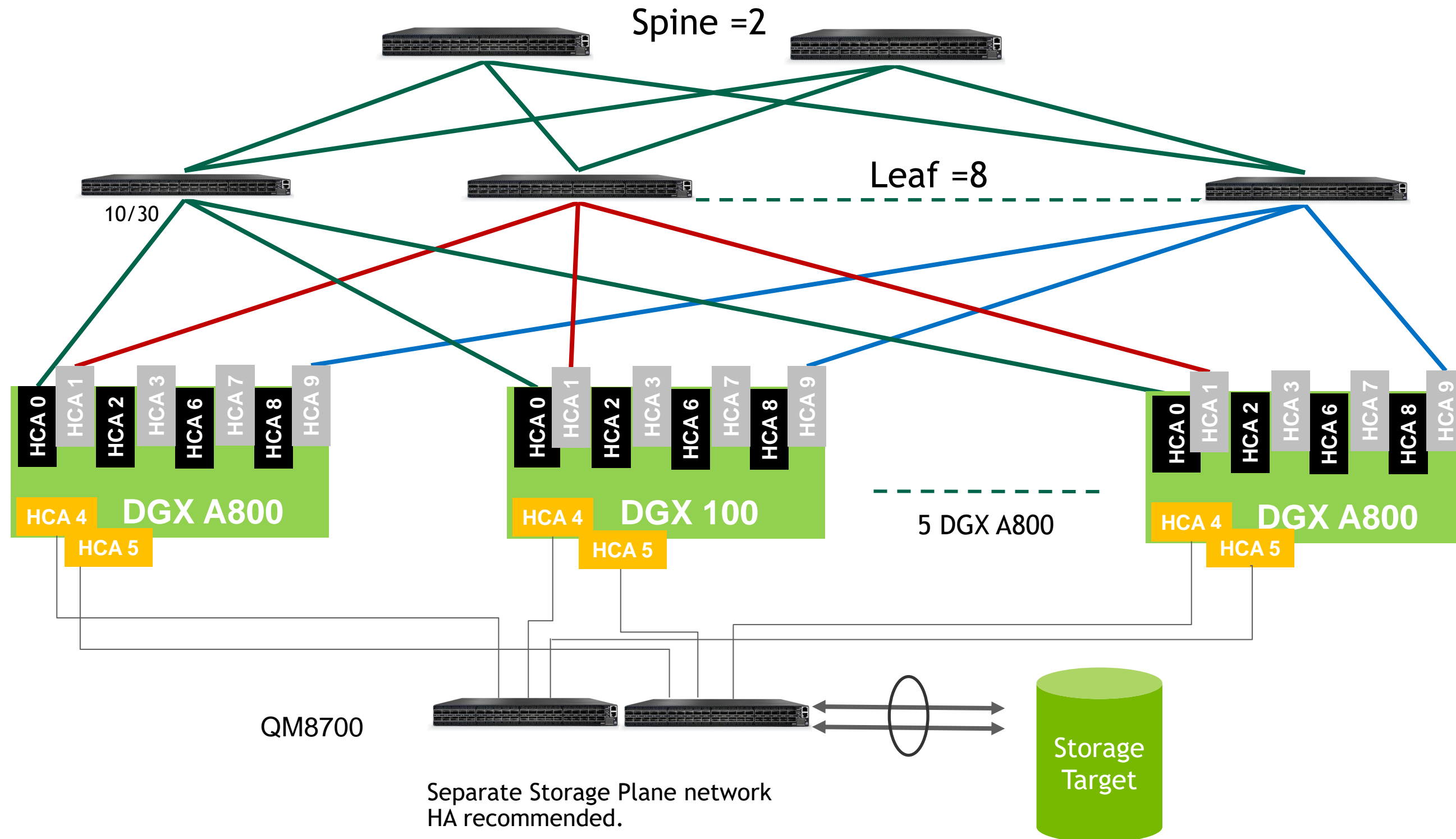
## InfiniBand 8x Rails + SHARPV2 SAT



- 2x QM8700 managed and 8x QM8970 unmanaged
- Support SHARP v2, one SAT flow per switch for optimal performance
- Separate Storage Plane, Spectrum SN4600 100Gb switch, HA configuration
- HA configuration, need one additional HCA card
- For In-Band management network, suggest to use Spectrum SN4600 100Gb switch
- For out-of-band management network, use SN4610 1Gb switch

# 5 DGX A800 NETWORK

## InfiniBand 8x Rails + SHARPV2 SAT



- 2x QM8700 managed and 8x QM8970 unmanaged **or all Unmanaged**
- Support SHARP v2, one SAT flow per switch for optimal performance
- Separate Storage Plane, 2x QM8790 HA configuration
- For In-Band management network, suggest to use Spectrum SN4600 100Gb switch
- For out-of-band management network, use SN4610 1Gb switch



THANK YOU



**nVIDIA**<sup>®</sup>