



Flash Memory Summit

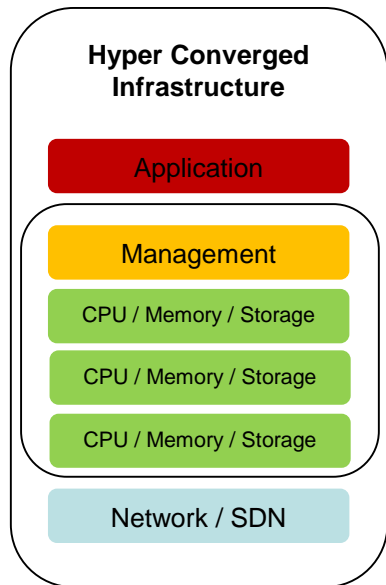
# Developing NVMe-oF Virtual All-Flash Array

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# Data Center Is Transforming

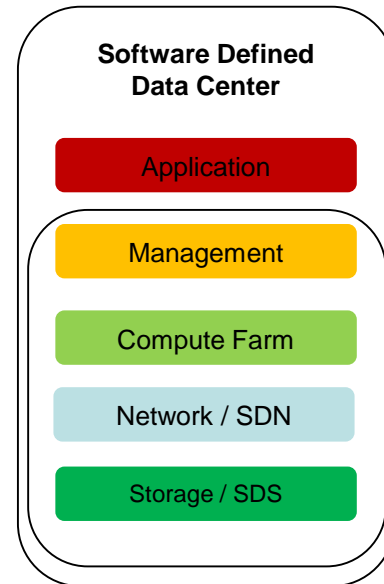


- Simply Deployment
- Remove Complexity for the SAN
- Virtualized CPU and Storage

**Challenge**

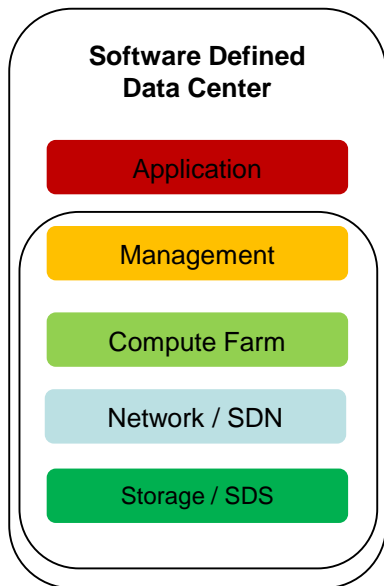
- CPU/Storage as a block unit, utilization will be an issue
- Performance might

- Software define everything
- Compute farm can be use application and various of purpose
- Storage/Network virtualize.

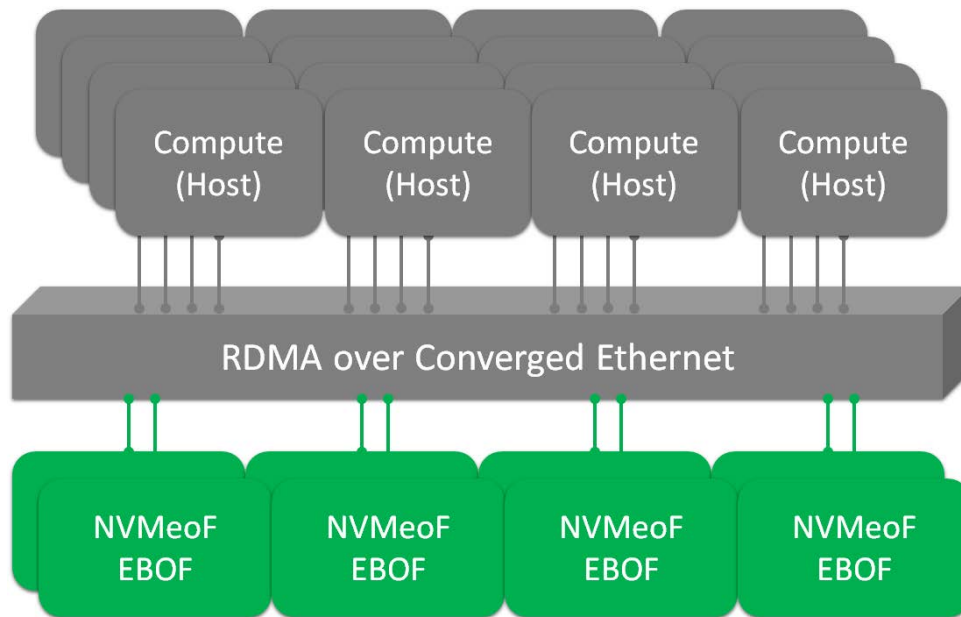




# NVMe-oF Realize The Composable Infrastructure



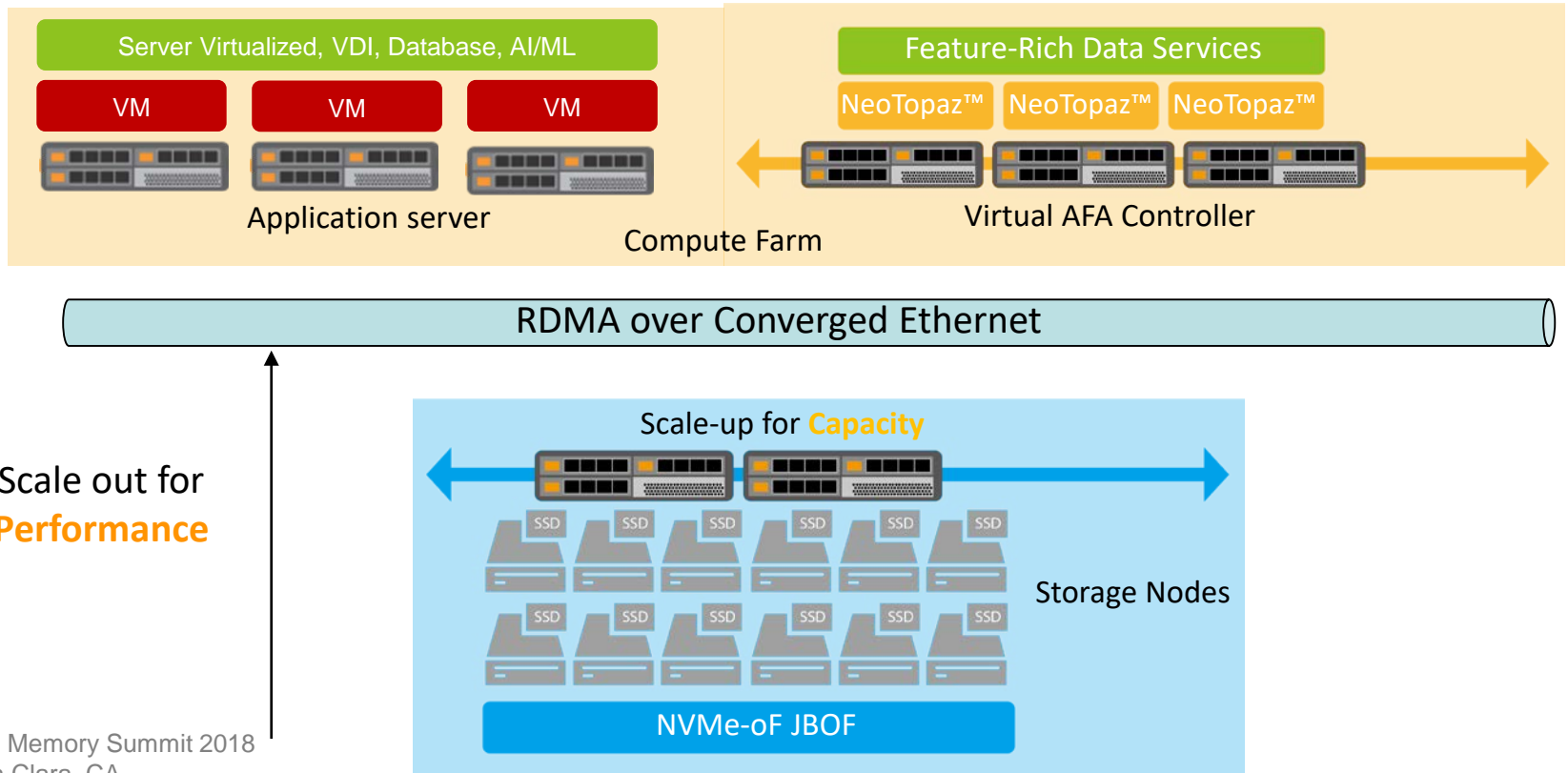
- Leverage the existing compute node
- Virtualize the storage controller in compute node



- Ethernet NVMe JBOF can reduce the overall cost
- More flexible for the storage controller.



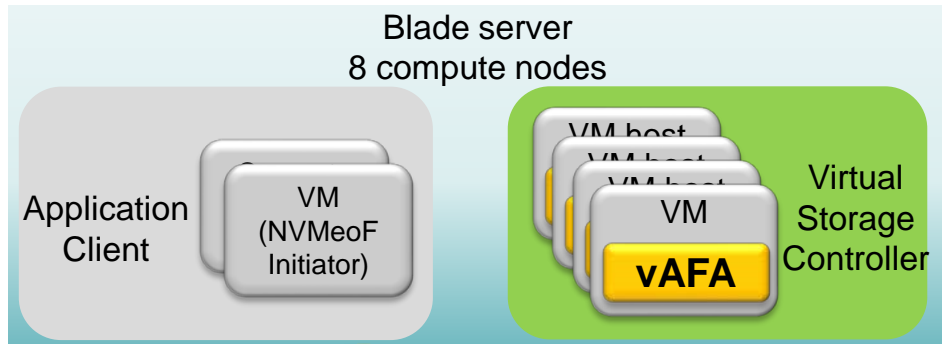
# NVMe-oF Decouples Compute and Storage Nodes





# Proof-of-Concept Topology

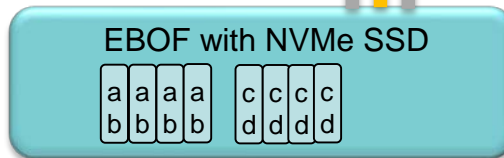
2 Clients  
for fio benchmark



Create 4 vAFA  
to connect with Ethernet JBOF



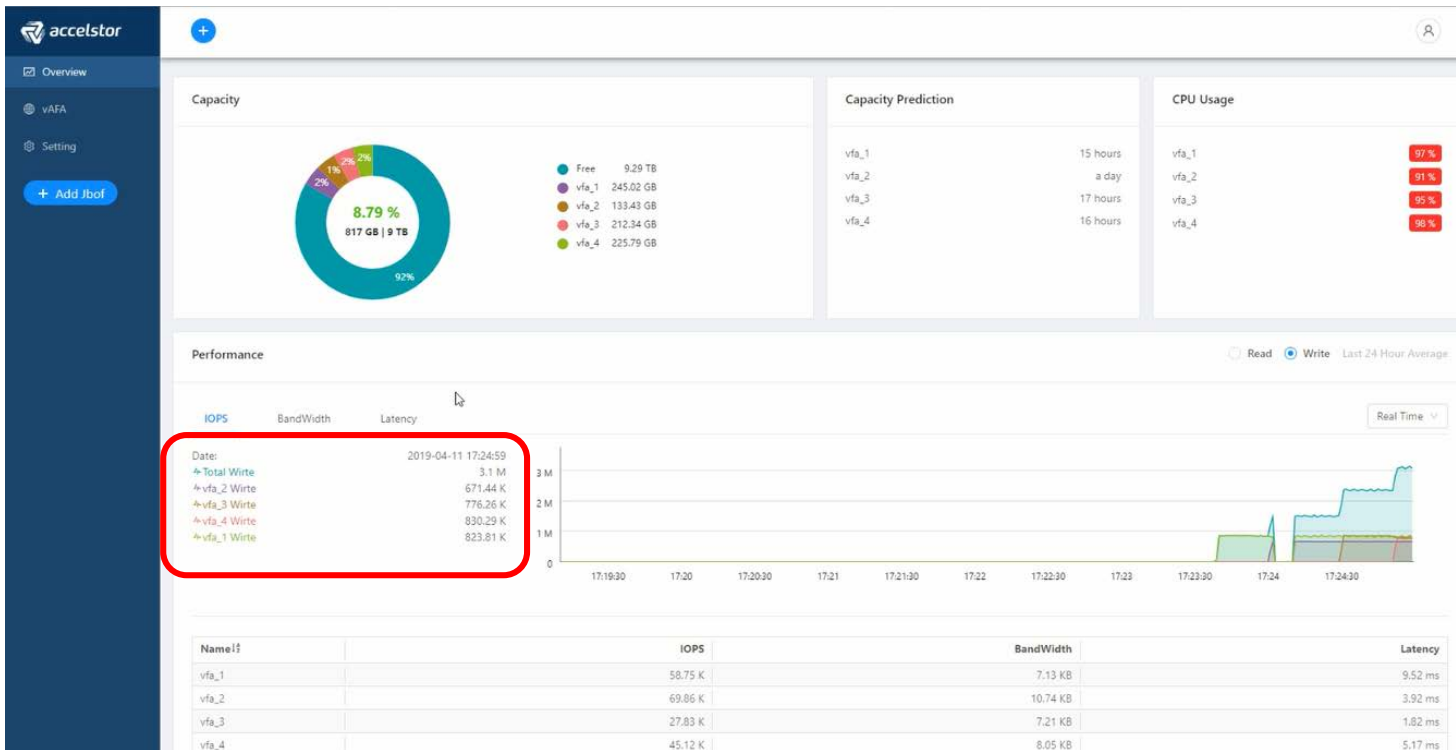
4 NVMe SSD as one group  
Each group has 2 namespaces





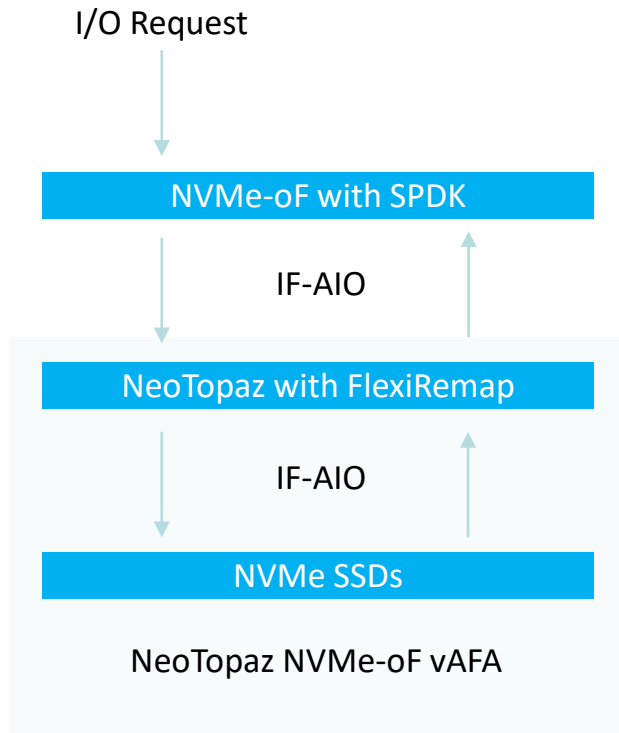


# Performance Result and Dashboard

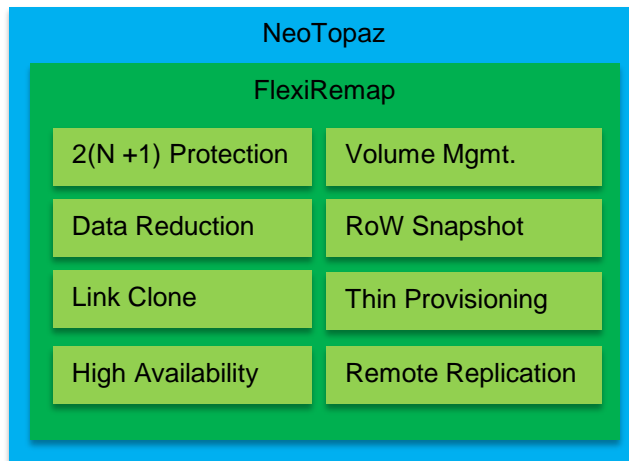




# Data Center and Enterprise Storage Feature Requirement



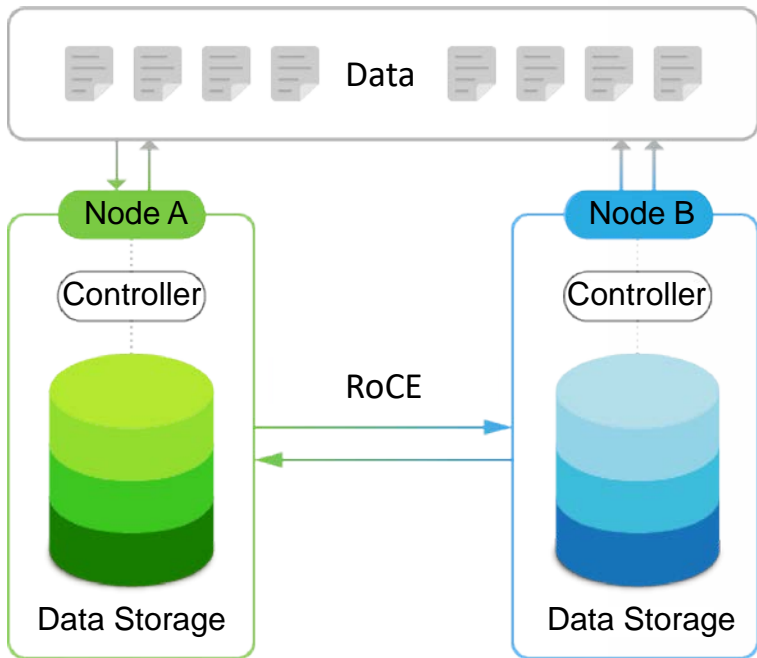
- FlexiRemap - FMS 2016 Best of Show Technology / software
- Implement the interrupt-free Asynchronous IO (IF-AIO) between SPDK and NeoTopaz
- Deliver up to 1M IOPS in 4KB and under 100us



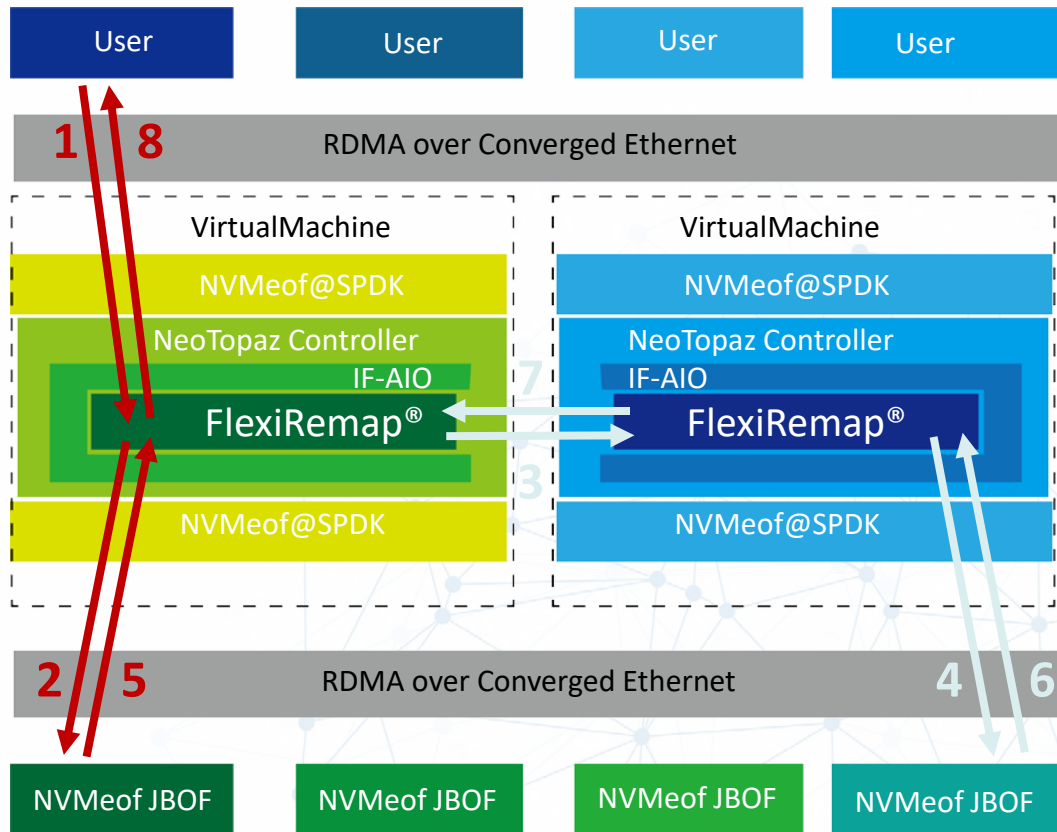




# NeoTopaz™ High Availability Solution



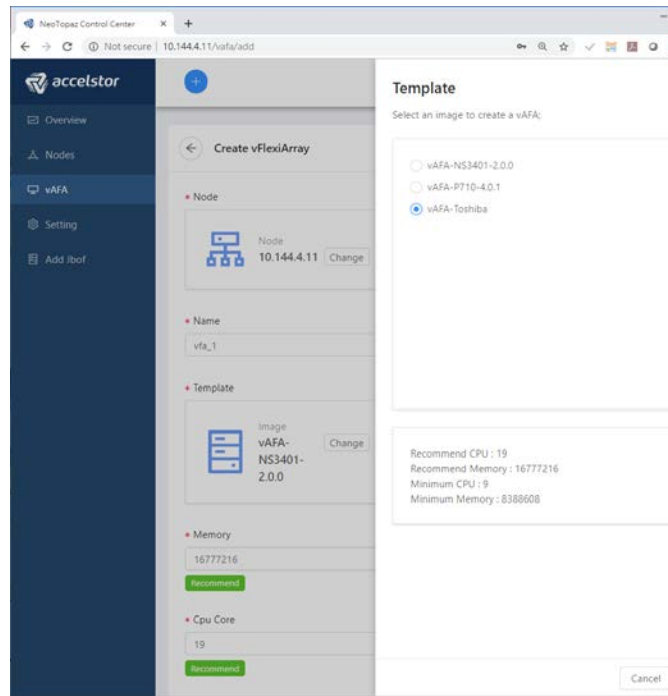
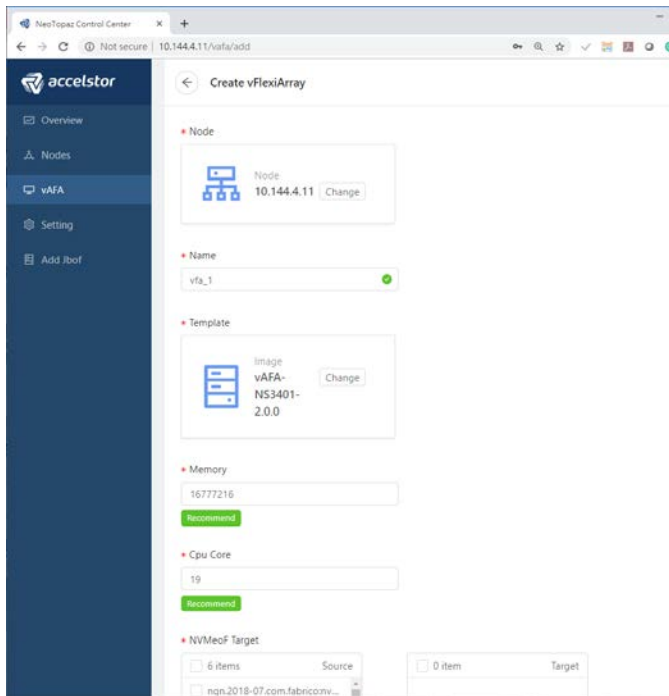
Shared-Nothing HA



Data flow of vFlexiArray™



# De-centralized management design





# Key Benefits of Virtual NVMeoF AFA

- Leverage Existing Compute Nodes
- On-demand
- Flexible Deployment
- HW-independent