



Global Leader in Software Defined Storage

Nexenta Technical Sales Professional (NTSP)

COURSE CONTENT

Nexenta Technical Sales Professional (NTSP) Course

USE CASE: MICROSOFT EXCHANGE

Use Case

Microsoft Exchange Environment

Objectives:

- Determination of performance requirements
- General characteristics
- System Design
- Disk Layout
- Optimization

Determination of performance requirements

- Determine mailbox count and general level of mailbox activity
 - As per MicroSoft, an Exchange mailbox will generate between .06 and .6 IOPS each, with .06 IOPS being a relatively low use mailbox, and .6 being for a relatively busy mailbox.
 - Microsoft Exchange Server Role Requirements Calculator gives sizing for Exchange and recommended storage sizing.
- Only SAN (iscsi or FC) disk attachment is supported by Microsoft
- Data Integrity
 - MicroSoft generally recommends mirroring for database/log volumes, although all RAID levels are supported. If adequate ZIL and L2ARC caches are sized appropriately, RAID Z3 would provide the best data integrity without requiring multiple copies in Exchange

General Characteristics

- Capacity and parity are key
 - Mirroring for pure performance, but may desire copies in Exchange for resiliency
 - Raidz1 for capacity, but still only single fault tolerant, so may desire copies.
 - Raidz2/3 for resiliency if multiple copies managed by Exchange are not desired.
- Performance should not be expected on large capacity solutions (1PB+)
- I/O
 - Exchange tends to be an I/O intensive application
- Throughput
 - Depending on workload this could be a factor
 - The more spindles the better performance
- For data integrity reasons (as well as performance), ZIL should be considered mandatory. L2ARC may be helpful depending on the deployment size, and ARC cache hit ratios seen.

System Design

- CPU
 - The faster the better
 - Prefer faster core speed versus number of cores
- Memory
 - Minimum 128GB
 - Larger memory for Read intensive environments
- Host Attach
 - 4 x 10Gbe
 - Link aggregation for performance and redundancy
 - 4 x 8GB Fibre channel with round robin multipath configuration
- HBA
 - One JBOD per HBA if possible

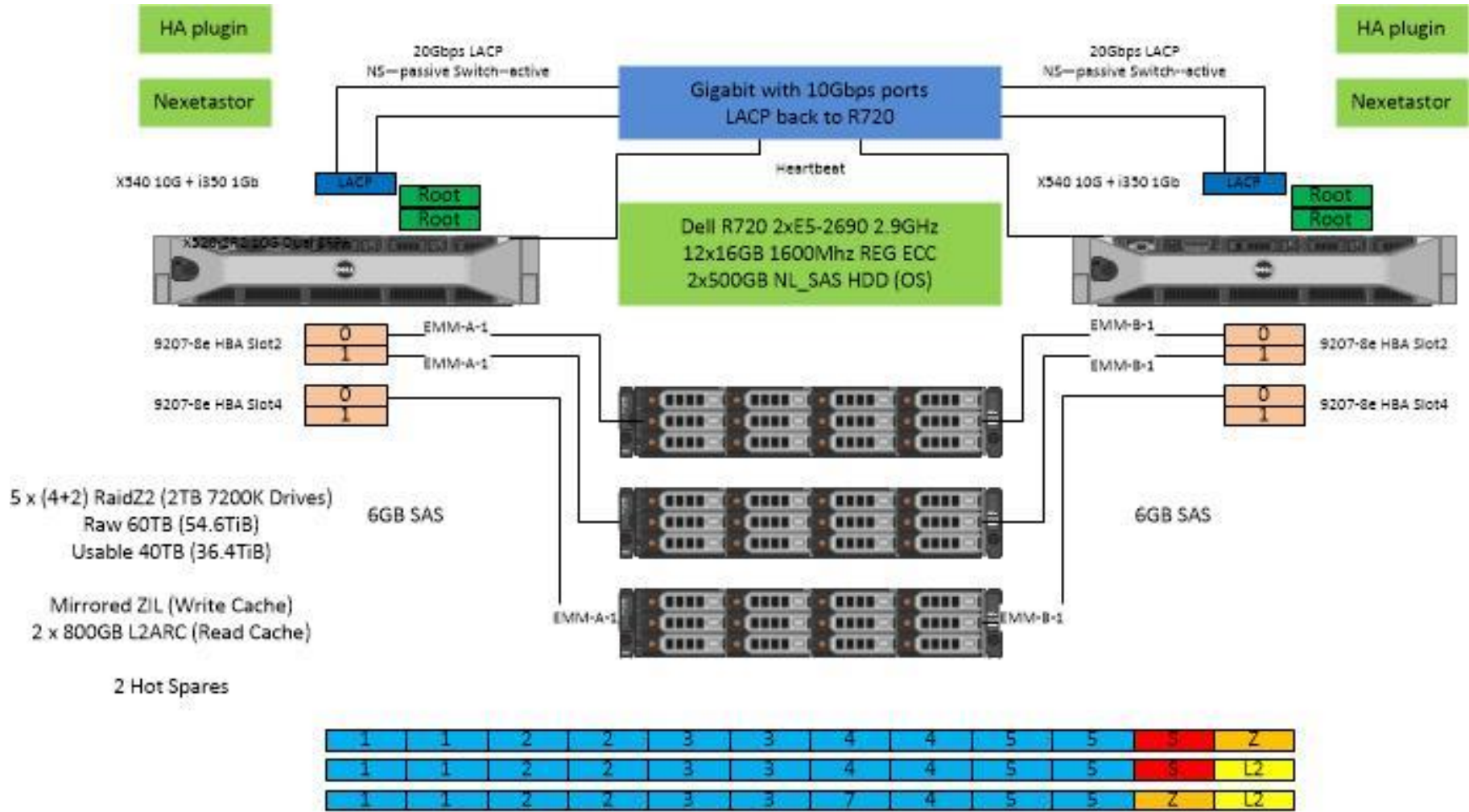
Disk Layout

- Pools
 - 4 pools per deployment minimum , two per controller to allow maximum performance
- Redundancy Type
 - Mirroring – Log/database drives (RaidZ2 or RaidZ3 also supported if performance will suffice)
 - One pool per controller
 - RaidZ2 – Restore volumes
 - 6+1 max, one pool per controller
 - The more vDevs the better
- ZIL/SLOG
 - Mirrored Pairs
 - Configure on Log/Database drives
 - If two pools make sure you have 2 mirrored pairs
- L2ARC
 - 1%-3% of usable capacity
 - Make sure you have enough memory to handle larger L2ARC builds
 - Don't exceed 4TB
 - The more DRAM the lower this can be

Optimization

- Record Size
 - 256K is recommended
- Protocol
 - Block level attach – iScsi or fibre channel
- Throughput
 - This only applies in high throughput environments
 - The more disks the better the throughput
 - Assume ½ disk throughput specifications per data drive (don't include parity disks)
 - 7.2K = 82.5MBs
 - 10K = 100MBs
 - 15K = 115MBs
 - MLC = 250MBs
 - SLC = 400MBs

Exchange Example



Module Quiz Questions

- What is the typical IOP requirement per Exchange mailbox?
- What is the preferred Record Size?
- What Redundancy Type is recommended?
- What is the maximum amount of L2ARC?

Module Quiz Answers

- What is the typical IOP requirement per Exchange mailbox?
 - As per MS, maximum IOPs per mailbox is .6
- What is the preferred Record Size?
 - As per MS, 256K
- What Redundancy Type is recommended?
 - Mirrors for log/data, Z2 for recovery, although other levels are supported
- What is the maximum amount of L2ARC?
 - 4TB