STORAGE AND BACKUP MANAGEMENT

PREPARED BY HPCSA--19

1. Fileystem is created using command
a) Mkfs
b) Format
c) Fsck
d) defrag
ans:a

2. Pseudo filesystem (/procfs)
a) Access kernel information about processes
b) Storing mount points
c) Storing filesystem path
d) All of the mentioned
ans :a

3. Examples of Journaling filesystem
a) Ext2
b) Ext3
c) UFS
d) JFS
ans:b

4. VFS
a) Standalone filesystem
b) Support multiple filesystem type
c) Network filesystem
d) None of the mentioned
ans:b

5. Wear leveling affects
a) Hard disk
b) Flash
c) Optical storage
d) RAM
ans:b
6. What is minimum number of disk needed for raid level 5 ?
a.2

b.3
c.4
d.5
e.none of the above
answer:b

7. which of the following combinations can support raid 05 ?
a.3 sets with 2 disk each
b.2 sets with 3 disk each
c.2 sets with 4 disk each
d.4 sets with 3 disk each
answer: a

8. what will be used by SAN to provide connectivity between host and storage
a.SCSI
b.FC or iSCSI
c.iSCSI
d.FC
answer: b

9. which of the following raid levels provides maximum usable disk space ?
a.raid 0
b.raid 2
c.raid 10
d.raid 5
answer: a

10. CIFS doesn't support following
a.stateless
b.oplocks
c.unicode support
d.none of the above
answer:a

11. Which of the following is false?
a) The more important the data, the greater the need for backing it up
b) A backup is as useful as its associated restore strategy
c) Storing the backup copy near to its original site is best strategy
d) Automated backup and scheduling is preferred over manual operations
ans:-cs

12.Backup of the source data can be created

a) On the same device
b) On another device
c) At some other location
d) All of the mentioned
ans:-d

13.Which of the following is Backup software?
a) Amanda
b) Bacula
c) IBM Tivoli Storage Manager
d) All of the mentione
ans:-d

14.Which of the following backup technique is most space efficient?
a) Full backup
b) Incremental backup
c) Differential backup
d) All of the mentioned
ans:-b

15.Which of the following techniques can be used for optimizing backed up data space?
a) Encryption and Deduplication
b) Compression and Deduplication
c) Authentication and Deduplication
d) Deduplication only
ans:-b
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21. What's the demerits of DAS?
a) Interconnect limited up to 10km
b) Excessive network traffic
c) Distance limitations and slow speed
d) Distance limitations and Inability to share data with other servers

22. Which storage technology requires downtime to add new hard disk capacity ?
a) DAS
b) SAN
c) NAS
d) None

23. What is the most basic level of storage ?
a) SAN
b) DAS
c) NAS
d) ISCSI

24. Disk controller driver in DAS architecture is replaced in SAN either with ---?
a) FC Protocol
b) iSCSI
c)TCP/IP stack
d)None

25. I/O requests to disk storage on a SAN are called

a) File I/Os
b) SAN I/Os
c) Block I/Os
d) Disk I/Os
Ans-c

26. What will be used by SAN to provide connectivity between hosts and storage?
a) FC
b) iSCSI
c) FC or iSCSI
d) SCSI
Ans-c

27.What are the major benefits of SAN?
a) Centralized backup
b) Storage consolidation
c) LAN-less backup
d) All of the mentioned
Ans-d

28. Which data storage technology offers the best performance?
a) SAN
b) NAS
c) DAS
d) None of the mentioned
Ans-a

29. Identify the data storage technology used in the data center?
a) NAS
b) SAN
c) DAS
d) None of the mentioned
Ans-b

30. I/O requests to disk storage on a SAN are called1
a) File I/Os
b) SAN I/Os
c) Block I/Os*
d) Disk I/Os

31. In SAN storage model, the operating system view storage resources as —— devices
a) FC
b) SCSI*

c) SAN
d) None of the mentioned

32. What are the major benefits of SAN?
a) Centralized backup
b) Storage consolidation
c) LAN-less backup
d) All of the mentioned*

33.Which of the following is not true about a tape silo?
a) Libraries provide large storage capacity at a very cheap rate*
b) They have slow access time
c) Tape libraries are primarily used for backups and as the final stage of digital archiving
d) None of the mentioned

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a) FC
b) iSCSI
c) FC or iSCSI*
d) SCSI

RAID

35 What is the unique characteristic of RAID 6 (choose one)?
a) Disributed Parity
b) Striping
c) Two independent parity
d) mirroring
Que 2. Which of the following combinations can support RAID 05 ?
a) 2 sets with 3 disks each
b) 3 sets with 2 disks each
c) 2 sets with 4 disks each
d) 4 sets with 1 disk each

36. Which of the following raid level provides maxi mum usable disk space ?
a) RAID 1
b) RAID 0
c) RAID 5
d) RAID 6

37. What is the minimum number of disks needed for Raid level 5 ?
a) lvm
b) raidsoft
c) md
d) nione

38. --------is the number of bits which can be transferred in a specific time.

a)Bandwidth
b)data
C)a & b
d) non of Above

Ans:- a

39 PVFS consists of 4 main components.The components are the
a)PVFS2-server
b)pvfslib
c)PVFS-client-core
d)PVFS kernel module.
e) Allof Above

Ans:- e)

40. PVFS Utilities include the karma management tool,
a)pvfs-ping
b)pvfs-ls
c)pvfs-cp
d)All of above

Ans: d)

41.Fiber channel support both optical and copper media, with distances up to 10 km.

42.Fibre Channel consists of 5 layers 1.FC0 2.FC1 3.FC2 4.FC3 5.FC4.

43.Fiber channel host bus adapter has world wide name.

44.ISCSI is a transport layer protocol that works on top of the Transport Control Protocol and enables block-level access

45.Serial Attached SCSI(SAS) is a point-to-point serial protocol that moves data to and from computer-storage devices such as hard drives and tape drives.

46) Hard disk are organized as
A)cylinders
B)tracks
C)cylinders & tracks
D)master boot record
ans-C

47)When connecting two internal SCSI hard disks to a computer, where do you connect the second hard drive?
A) Any open SCSI port on the computer
B) A serial port on the first host
C) An open parallel port on the computer
D) An open SCSI port on the first hard drive
ans-A

47) Which of the following is a physical storage media?
a) Tape Storage
b) Optical Storage
c) Flash memory
d) All of the mentioned
ans-D

48) What is a main feature of the active partition of a hard drive that is using MBR?
A) The Operating System uses the active drive to boot the system
B) The active partition is the only Primary partition.
C) There can be multiple active partitions.
D) Active partitions are considered RAM.
ans-A

49) A technician is considering implementing RAID 5 before installing Linux. Which technology does RAID 5 use?
A) Spanning
B) Mirroring
C) Striping with Parity
D) Lazy Rewriting
ans- C

Optimization of Parallel File Systems:

50. Why storing small files in a parallel file system is not desirable?
a) Parallel file systems were designed to handle large amount of data.
b) Accessing time for small files require more time.
c) Due to constant block size, more space will be wasted
d) All of the above

51. Which of the following will affect the performance of Lustre file system?
a) Bottlenecks of I/O operation
b) Stripping
c) Number of MDT's and MSD's
d) Number of OST's and OSS's

53. Accessing disk is much slower than accessing memory. As a result many file systems have been designed with various optimizations to improve performance. What is an example of file system perfromance optimization?
a) Caching - i.e. keep in memory a collection of blocks that logically belong on the disk, for performance reasons.
b) Block read ahead - i.e write every modified block to disk as soon as it has been written to the cache.
c) Reducing disk arm motion - i.e try to get blocks into the cache before they are needed
d) disk defragmentation - i.e putting blocks that are likely to be accessed in a sequence, close to each other.

54. Which of the following file system is not a kernel module?
a) HDFS
b) GPFS
c) Lustre
d) OrangeFS

55. Which of the following characteristics help to optimize the performance of parallel file system?
a) Caching
b) Increase the memory
c) both a and b
d) Striping

56.A NAS solution is most appropriate for what type of data environment
a) Secured Access

b) Shared access
c) Remote access
d) Parallel access
Ans-b

57.Which topology is best suited for medium sized enterprise.
a. NAS
b. SAN
c. DAS
d.All of above
Ans-a

58.Bundling and configuration allows 5 minutes plug and play characteristic of ---------
a.SAN
b.DAS
c.NAS
d.RTOS
Ans-c

59.NFS(Network file system) is one of the common protocols implemented by----------
a.SAN
b.NAS
c.DAS
d.None of these
Ans-b

60 A storage device which attached directly to a network, called----------
a. Storage area network
b. Network attached network
c. Direct attached storage
d.All of above
Ans-b

MCQ on componanat and benifits of intelligent storage sysytem
61)which is not command queuing algorithm
==>1)FIFO
2)Access time optimization
3)Least Recently used
4)Seek Time Optimizaton
Ans=Least Recently Used

62) improves storage system performance by isolating hosts from the mechanical delays associated with physical disks,
which are the slowest components of an intelligent storage system.
===>1)Front end
2)cache
3)back end
4)none of the obove
Ans=cache

63) The algorithms implemented on back-end controllers provide
==>1)error detection
2)correction
3)both
4)none
Ans=Both

64)Methods to expands LUNs that require additional capacity or performance is called ----MetaLUN

65)Failure occurred because of an error, a defect in that module. cause of an error is a
==)1)Error
2)Mistake
3)Fail
4)Corruption
Ans=Error

66)Disks found inside a server connected to an I/O bus, is refered as
==)1)Indirect memory module
2)Direct memory module
3)Direct attached
4)Indirect attached
ans=Direct attached

67) Which of the following is not true about JBOD?
a) JBOD can combine hard disks of different sizes into a single unit without loss of any capacity
b) If a drive in a JBOD set dies then it may be easier to recover the files on the other Drives
c) JBOD supports data redundancy
d) JBOD doesn’t has any storage controller intelligence
Ans=JBOD supports data redandancy

68 Maximum strip size ldiskfs and zfs< 4 gb

69 Minimum strip size ldiskfs and zfs 64kb

70 Maximum file sizeldiskfs 31.25 PB

71 Maximum file size zfs512 PB

72.Maximum pathname lengthldiskfs and zfs4096 bytes

73.Class 1flowcontrol Frames use end-to-end flow control

74 class 3 flowcontrol uses only buffer-to-buffer

75.cclass 2 Frames usesbuffer to buffer and end to end of flow control

76 Flow control is managed by the Sequence Initiator (source) and Sequence Recipient (destination) Ports using Credit and Credit_CNT

77 The buffer-to-buffer flow control is managed between an N_Port and an F_Port or between N_Ports in point-to-point topology

78 IPsec operate on which OSI layer ?
1.physical later
2.network layer
3application layer
4.presentation layer
answer:2

79.iSCSI was developed in the year
1.1998
2.1999
3.2000
4.1997
answer:1

80.iSCSI names are globally unique and permanent
1.True
2.False
answer:1

81 iSCSI allows which type of access

1.file level
2.block level
3.both
4.none of the above
answer: 2

82 which technology is used for linking Fibre Channel storage area networks
Answer : Fibre channel over ip (FCip)

83 iSCSI is mapping of
1.SCSI over TCP/IP
2.IP over SCSI
3.FC over IP
4.IP over FC
answer:1

Topic- FCoE architecture

84) In a fabric topology what is the discovery process that allocates fabric address to the participating n-ports?
a) Flogi
b) Fdisc
c) Both Flogi and Fdisc
d) None of the mentioned
Ans- c

85)Which FC layer is responsible for exchange/frame and sequence management?
a) Layer 0
b) Layer 1
c) Layer 2
d) Layer 4 (ULP)
Ans- c

86) What is the mechanism used to do flow control between participating N-Ports in a FC communication?
a) B-B Credit mechanism
b) E-E Credit mechanism
c) Both B-B and E-E Credit mechanism
d) None of the mentioned
Ans- c

87) What is the significance E-Port?
a) Creates an arbitrated loop

b) Extends the fabric by connecting to other fabrics
c) Represents un-initialized state of a port
d) Represents port with disconnected FC link
Ans- b

88)What is the size of FC payload?
a)2112bytes
b)2148bytes
c)2047bytes
d)2128bytes
Ans- a

89)1)------- uses a FC connection between two servers for ip data traffic
a)TCP/IP
b)SCSI
c)IPFC
d)ISCSI
ANS:IPFC

99)-------should manage parallel to serial communication
a)SCSI
b)IP
c)IPFC
d)FCP
ANS:FCP

100)----------can increase the maximum cable length by transmitting FC frames using MAN/WAN technique.
a)server
b)fibre channel
c)Link extenders
d)Disk
ANS: Link extenders

101)Difference between mFCP and iFCP is that MFCP used ---------- & iFCP used ----------
a)TCP/IP,IP
b)UDP/IP,TCP/IP
c)TCP/IP,UDP/IP
d)FCP,IP
ANS: UDP/IP,TCP/IP

102)ISNS is ----------

a)Inter Switch network service
b)Information storage name service
c) Internet Storage name service
d)Internet system name service
ANS: Internet Storage name service

103) Local variables are stored in an area called _____
a) Heap
b) Permanent storage area
c) Free memory
d) Stack

104) Which of the following header files must necessarily be included to use dynamic memory allocation functions?
a) stdlib.h
b) stdio.h
c) memory.h
d) dos.h

105) Which of the following is an example for non linear data type?
a) Tree
b) Array
c) Linked list
d) Queue

106) Queue data structure works on the principle of _____
a) Last In First Out (LIF0)
b) First In Last Out (FILO)
c) First In First Out (FIFO)
d) Last In Last Out (LILO)

107) Which of the following is an example of static memory allocation?
a) Linked list
b) Stack
c) Queue
d) Array

108) What is the most basic level of storage
a) SAN
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Answer: b

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c) TCP/IP stack
d) Any one of the mentioned
Answer: d

112) Identify a network file protocol in the below mentioned set.
a) FC
b) CIFS
c) SCSI
d) NAS
Answer: b

113) GPFS is based on which parallel file system?
1.Block
2.Object based
3.both 1&2
4.none

114) Which file system is based on object based parallel file system?
1.Lustre
2.PVFS
3.OrangeFS
4.none

115) which of the following is a parallel file system?

1.ext4
2.nfs
3.lustre FS
4.Fat

116) which of the following file system mostly used in the super computers?
1.lustre
2.GPFS
3.PVFS
4.all the above

117) Which one of the following hides the location where in the network the file is stored?
a) transparent distributed file system
b) hidden distributed file system
c) escaped distribution file system
d) spy distributed file system

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ans:-b

FCoE MCQ's:-
123).What is the speed at which fibre channel operates?
a)16 Gigabit Ethernet ----answer
b)8 Gigabit Ethernet
c)10 Gigabit Ethernet
d)5 Gigabit Ethernet

124).Where does FCoE operate?
a)Top of TCP/IP
b)Directly above Ethernet
c)Both a and b
d)None of above

125)Mark the statements true about FCoE-
a)A computer network technology that encapsulates fibre channel frames over Ethernet networks.
b)FCoE is encapsulated over Ethernet with the use of dedicated Ethertype 0x8906.
c)FCoE was meant to distribute with existing fibre channel networks.
d)FCoE is not routable at IP Layer.

126)How computers can connect to FCoE?
a)Network Interface card(NIC)
b)Host Bus Adapter(HBA)
c)Converged Network Adapters(CNA)
d)Both a & b

127)What are the main applications of FCoE?
a)Server Virtualization
b)Storage Area Network(SAN)
c)Network Area Storage(NAS)
d)Both a & b

128)For secure transmission that protects the username and password, and encrypts the content, FTP is replaced with _ _ _ _ _ _.

1)HTTP
2)SFTP
3)NFS
4)AFS

ANS:2)SFTP

129) Using file access protocols, data residing on which of the following can be accessed:
1) Local disk
2) Remote disk
3) Both
4) Neither

ANS:2)

130)NFS doesn't have the following characteristics
1) Idempotent procedures
2) Over NetBIOS
3) Stateless
4)Uses RPC

ANS:2)

131)Network interface cards (NICs), which provide connectivity to the network,which includes-----
1)Gigabit Ethernet
2)Fast Ethernet
3)ATM
4)Fiber Distributed Data Interface (FDDI)
5)all of these

ANS:5)

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132).Data is stored
in the file in an order corresponding to a .....ordering of the global solution matrix.
A.column major

B.row major
C.low major
D.high major

133).The ROMIO implementation of MPI-IO optimizes such a request by merging the accesses of different ..... and making large, well-formed .....to the file system.
A. requests , request
B. Processes, requests
C. Job, request

134) The benchmark requires that the
number of compute nodes be a perfect .....
A. Square
B. Cube
C. property

135). With more compute
nodes, the smaller granularity of each I/O access resulted in ..... performance.
A. Lower
B. Higher
C. no
D. Medium

136). The arrays
are actually four dimensional, but the first dimension has
only ..... elements and is not distributed.
A. Five
B. Four
C.three
D. Two

137)An FCoE frame is an _____frame that contains an FCoE Protocol Data Unit (PDU).
Ans:-Ethernet

138) what are FC protocols?
Ans :- i)FCP

139)How to turn on trunk port?
Ans :- >portcfgtrunk portID 1

140) What is WWNN size?

Ans:-World Wide Node Name, it is 64 bit address. It is for identify the particular HBA

141)What is SCN?
Ans:-State change notification used to find hardware failures .

142)What Is The Highest And Lowest Priority Of Scsi?
Ans:-There are 16 different ID's which can be assigned to SCSI device 7, 6, 5, 4, 3, 2, 1, 0, 15, 14, 13, 12, 11, 10, 9, 8.
Highest priority of SCSI is ID 7 and lowest ID is 8.

143)How Many Minimum Drives Are Required To Create R5 (raid 5) ?
Ans:-You need to have at least 3 disk drives to create R5.

145)Which of the following login is associated with creating an ULP level image pair?
Ans:Prli

146) WHAT ?IS THE MEASURING UNIT OF DATA ACTIVITY
Ans:-Gigabits per second (Gb/ps)

147)STAND FORM IS BER?
Ans:-BER is Bit Error Rate