

Information Storage and Management

Ideal Place to offer:

Core Subject in the 5th Semester BE (CSE & IT) / 4th Semester MCA branches / 1st Semester Mtech programs (including BCA/BSC Programs)

Overview

Information Storage and Management (ISM) is the only course of its kind to fill the knowledge gap in understanding varied components of modern information storage infrastructure. It provides a strong understanding of information storage technologies which prepares you to learn advanced concepts, technologies and also enable you to make more informed decisions in an increasingly complex IT environment. You will learn about the architectures, features, and benefits of Intelligent Storage Systems; storage networking technologies such as FC-SAN, NAS, and IP-SAN; long-term archiving solution – CAS; various business continuity solutions such as backup and replication, the increasingly critical area of information security, and the emerging field of storage virtualization including storage resource management. The technologies described in the course are illustrated and reinforced with EMC product examples. Realistic case studies enable the participant to design the most appropriate solution for given sets of criteria

Prerequisites:

To understand the content and successfully complete this course, a participant must have a basic understanding of computer architecture, operating systems, networking, and databases. Participants with experience in specific segments of storage infrastructure would also be able to fully assimilate the course material

Course Objectives

Upon successful completion of this course, participants should be able to:

- Evaluate storage architecture; understand logical and physical components of a storage infrastructure including storage subsystems
- Describe storage networking technologies such as FC-SAN, NAS, IP-SAN and data archival solution – CAS
- Identify different storage virtualization technologies and their benefits
- Understand and articulate business continuity solutions including, backup and recovery technologies, and local and remote replication solutions
- Define information security, and storage security domains
- Identify parameters of managing and monitoring storage infrastructure and describe common storage management activities and solutions

Syllabus

The Modules are designed to support the course objectives. The following modules are included in this course:

Unit I: Storage Systems

- Review the amount of information being created and understand the value of information to a business
- Identify Data Center infrastructure elements and their requirements
- Understand role of ILM strategy
- List physical and logical components of host, connectivity, and storage
- Detail the disk drive architecture and performance
- Describe the concept of RAID and different RAID levels (RAID 0, 1, 3, 5, 0+1/1+0, and 6)
- Define Intelligent Storage System (ISS) and its components
- Implementation of ISS as high-end and midrange storage arrays.

(07 periods)

Unit II: Storage Networking Technologies and Virtualization

- Describe the implementation of DAS and overview of SCSI
- Define and detail the architecture, components, and topologies of FC-SAN, NAS, and IP-SAN
- Understand the object based storage system CAS and its application as long-term archiving solution
- Describe block-level and file-level storage virtualization technologies and processes
- Overview of emerging technologies such as Cloud storage, Virtual provisioning, Unified Storage, FCOE, FAST

(14 periods)

Unit III: Business Continuity

- Understand the concept of information availability and its measurement
- Describe the causes and consequences of downtime
- Define RTO, and RPO
- Identify single points of failure in a storage infrastructure and solutions for its mitigation
- Describe the backup/recovery purposes and considerations
- Discuss architecture and different backup/Recovery topologies
- Describe local replication technologies and their operation
- Describe remote replication technologies and their operation. Overview of emerging technologies like de duplication, offsite backup

(11 periods)

Unit IV: Storage Security and Management

- Define information security
- List the critical security attributes for information systems
- Define storage security domains
- List and analyze the common threats in each domain
- Identify key parameters and components to monitor in a storage infrastructure
- List key management activities and examples
- Define storage management standards and initiative. Industry trend

(08 periods)

Labs

Labs reinforce the information you have been taught. The lab for this course is based on Navisphere Manager simulator, which simulates the configuration and management interface for EMC CLARiiON storage array. This course also includes teach-back sessions to assist trainers for delivering the content in most effective way.

Reference Books:

1. EMC Corporation, Information Storage and Management, WileyIndia, 9788126521470.
2. Robert Spalding, "Storage Networks: The Complete Reference", Tata McGraw Hill , Osborne, 2003.
3. Marc Farley, "Building Storage Networks", Tata McGraw Hill ,Osborne, 2001.
4. Additional resource material on www.emc.com/resource-library/resource-library.esp

Concept Map – Information Storage & Management

