SNIA Technology Electives Program
Qualified Data Protection Associate

SNIA Qualified Data Protection Exam Description & Preparation Guide

Audience

The candidate for this exam would like to validate their storage and data protection knowledge. Must have IT experience but not necessarily be a storage specialist. Basic knowledge of data protection and recovery is suggested as well as strategies and solutions as they apply to various areas within a storage environment.

Tasks/Knowledge/Skills & Abilities - This credential signifies that the candidate can:

- Recognize and describe concepts of Data Protection, Restoration, and Recovery Methods
- Assess Data Protection Planning and Strategies
- Use Management Tools and Practices
- Evaluate Data Protection Methods and Practices
- Assess Security/Confidentiality
- Troubleshoot potential pain points of data protection and recovery

Test Parameters

- ✓ The delivery channel for this test is the Prometric IBT on-line testing system worldwide. http://ibt.prometric.com/SNIA (there will be an error on the page, but just scroll down until you get to SNIA
- ✓ The exam format is multiple-choice with multiple-responses where appropriate and noted.
- ✓ The maximum testing time allowed for the exam is 60 minutes
- ✓ The exam language is currently English.

Prerequisite Exam

- ✓ None
- ✓ SNIA Storage Networking Foundations (S10-101) recommended

Passing Score: 70%

Number of Exam Items: 60

Price: $100 USD

Time Limit: 90 minutes

SNIA Qualified Data Protection Associate (SQDPA) - Topics to Study

Exam items will be drawn from this blueprint and study material.

1 **Recognize Concepts of Data Protection, Restoration, and Recovery Methods**
- ***1.1*** Defining terms and relevance of data protection
  - ***1.1.1*** Define data protection
  - ***1.1.2*** Explain the importance of data protection
  - ***1.1.3*** Indicate reasons why a datacenter would need data protection
- ***1.2*** Describe key restoration and recovery principles

2 **Assessing Data Protection Planning and Strategies**
- ***2.1*** Explain the components of a data protection plan
  - ***2.1.1*** Design redundancy into a switched environment to meet customer requirement for high availability and redundancy
  - ***2.1.2*** Determine what the key factors are to be decided on
  - ***2.1.3*** Identify the reasons for strategy choices
  - ***2.1.4*** Determine the key considerations in planning a protection strategy
  - ***2.1.5*** Determine the key considerations of a protection strategy from a recovery and restoration point of view (RTO/RPO)
  - ***2.1.6*** Explain the benefits of tiering on data protection strategies
- ***2.2*** Define a service level agreement for a data protection plan
  - ***2.2.1*** Explain metrics that are used in developing Service Level Agreements (SLAs)
  - ***2.2.2*** Describe roles of classification and requirement setting

3 **Using Management Tools and Practices**
- ***3.1*** Identify commonly used management tools for data protection, backup and recovery
  - ***3.1.1*** Identify management tools for data protection and backup
  - ***3.1.2*** Identify management tools for restoration
  - ***3.1.3*** Identify management tools for system recovery
  - ***3.1.4*** Identify management tools for application recovery
- ***3.2*** Explain offsite media management
  - ***3.2.1*** Describe ways to manage offsite media
  - ***3.2.2*** Discuss considerations when storing media offsite

4 **Evaluating Data Protection Methods and Practices**
- ***4.1*** Compare and contrast the different data protection architecture choices
  - ***4.1.1*** Identify key data protection technologies, configurations, connectivity options, and methods
  - ***4.1.2*** Identify factors that determine which technologies to use when architecting a data protection solution
  - ***4.1.3*** Explain the major functional components/attributes of backup software
  - ***4.1.4*** Describe the key methods used for recovery
  - ***4.1.5*** Describe the key methods used for restoration
  - ***4.1.6*** Describe the differences in application consistency points
- ***4.2*** Evaluate the role of tape in backup practices

- ***4.2.1*** Identify the best practices for tape-based backup
- ***4.2.2*** Key issues need to be considered in using tape
- ***4.2.3*** Identify the key benefits of tape-based backup
- ***4.2.4*** Determine key limitations of a tape-based backup

4.3 Evaluate the role of disk (D2D) in backup practices

- ***4.3.1*** Determine the key considerations when using disk
- ***4.3.2*** Identify the key benefits of using disk-based backup

4.4 Evaluate the role of Continuous Data Protection (CDP) in backup practices

- ***4.4.1*** Identify the key attributes of CDP
- ***4.4.2*** Identify the key benefits of using CDP backup
- ***4.4.3*** Determine the key limitations of a CDP backup

4.5 Evaluate the role of Snapshots in backup practices

- ***4.5.1*** Identify the key attributes of snapshots
- ***4.5.2*** Identify the key benefits of using snapshots
- ***4.5.3*** Determine the key limitations of snapshots

4.6 Evaluate the role of a Virtual Tape Library in backup practices

- ***4.6.1*** Name the key attributes of using a VTL
- ***4.6.2*** List the benefits of VTL
- ***4.6.3*** List the key limitations of a VTL

4.7 Explain the role of data deduplication in the backup process

- ***4.7.1*** Determine how does data deduplication help the backup process
- ***4.7.2*** Assess how deduplication helps in recovery and restoration
- ***4.7.3*** List the key benefits of deduplication for backup
- ***4.7.4*** Identify the key factors to consider in designing a deduplication system for backup
- ***4.7.5*** State the considerations when implementing deduplication for recovery and restoration
- ***4.7.6*** Identify where deduplication can be used in the backup process

4.8 Identify the methods of recovering a database

- ***4.8.1*** Explain the recovery mechanisms that databases use
- ***4.8.2*** Identify ways that database backup/dataprotection works inconjunction with native database tools
- ***4.8.3*** Compare and contrast ways to recover a database
- ***4.8.4*** Determine steps to restore database data

4.9 Describe the role of backup in disaster recovery

- ***4.9.1*** Explain the limitations of backup for disaster recovery
- ***4.9.2*** Describe how to manage disaster recovery backups

5 Assessing Security/Confidentiality

5.1 Summarize the security exposures that can occur during backup

- ***5.1.1*** Indicate security exposures that can occur during offsite media transfers and how to guard against them

5.2 Define the process for deleting expired information from the backup pool

5.3 List the requirments for eDiscovery of the backup pool

6 Troubleshooting potential pain points of data protection and recovery

6.1 Identify common backup/data protection problems

- ***6.1.1*** Recognize the meaning of common backup errors
- ***6.1.2*** What are the choices to resolve backup errors and the consequences
- ***6.1.3*** Determine steps to resolve recovery problems; what can go wrong

6.2 Describe how to identify backup and restore performance issues

6.2.1 Analyze which areas of the infrastructure can contribute to performance issues with backup and restore

Reference List

SNIA Tutorials about Data Protection and Management www.snia.org/tutorials

Introduction to Data Protection: Backup to Tape, Disk and Beyond

Jason Iehl

Download

Extending the enterprise backup paradigm with disk-based technologies allow users to significantly shrink or eliminate the backup time window. This tutorial focuses on various methodologies that can deliver an efficient and cost effective disk-to-disk-to-tape (D2D2T) solution. This includes approaches to storage pooling inside of modern backup applications, using disk and file systems within these pools, as well as how and when to utilize deduplication and virtual tape libraries (VTL) within these infrastructures.

Learning Objectives

- Identify and define backup and restore operations and terms
- Compare and contrast backup and restore alternatives to achieve data protection and data recovery.
- Get a basic grounding in backup and restore technology including tape, disk, deduplication, virtual tape and replication technologies.

Trends in Data Protection and Restoration Technologies

Michael Fishman

Download

Many disk technologies both old and new are being used to augment tried and true backup and data protection methodologies to deliver better information and application restoration performance. These technologies work in parallel with the existing backup paradigm. This session will discuss many of these technologies in detail. Important considerations of data protection include performance, scale, regulatory compliance, recovery objectives and cost. Technologies include contemporary backup, disk based backups, snapshots, continuous data protection and capacity optimized storage. Detail of these technologies interoperate will be provided as well as best practices recommendations for deployment in today's heterogeneous data centers.

Learning Objectives

- Understand legacy and contemporary storage technologies that provide advanced data protection
- Compare and contrast advanced data protection alternatives
- Gain insights into emerging DP technologies

Understanding Data Deduplication

Daniel Budiansky

Larry Freeman

Download

Data deduplication is a space saving technology that is being used to dramatically improve storage efficiency in the datacenter. This technical session will address the question of what data deduplication is, how it is performed, and the architectural choices available today. The topics covered include source and target deduplication, inline and post-processing, fixed length and variable length segmentation, as well as the availability and integrity of deduplicated data, and the complementary use of replication and removable media. It will also explore the factors affecting space reduction ratios relative to specific deduplication techniques.

Learning Objectives

- Understand the differences between various deduplication methodologies
- Identify the impact of data deduplication on replication and the use of removable media
- Correlate data deduplication to the space reduction effects that are achieved

In the Face of Litigation: Best Practices for Retention, Discovery and Deletion

Michael Peterson

Download

The new amendments to the Federal Rules of Civil Procedures, FRCP, have changed the face of the business risk of retaining information in an uncontrolled manner. eDiscovery requirements to produce legally and forensically authentic information impact IT and storage operations in ways you may have never considered. This presentation discusses the risks of long-term retention and deletion in the face of the many challenges catalyzed by the new amendments to the FRCP. It will update you on current requirements and best practices and how they affect the management of your storage resources and information assets.

Learning Objectives

- How does FRCP affect your organization and its storage practices
- What are appropriate best practices for retention and deletion considering FRCP
- How work underway within SNIA will help

This white paper by the Storage Security Industry Forum covers this quite thoroughly:

http://www.snia.org/forums/ssif/knowledge_center/white_papers/Storage-Security-Intro1.051014.pdf

Additional links to online reference material.

- SNIA Dictionary
- Remote Office Backup: Preparing for the Unavoidable, 9/07, Aberdeen Group
- Understanding Data Deduplication Ratios, SNIA White Paper
- Unix Backup & Recovery, W. Curtis Preston, O'Reilly Media, Inc. ISBN: 1-56592-642-0
- Building a Terminology Bridge: Guidelines to Digital Information Retention and Preservation Practices in the Datacenter, SNIA White Paper
- DDSR Webcasts, Articles, and White Papers: http://www.snia.org/forums/dmf/programs/data_protect_init/ddsrsig/
- Article: "SRM: the secret to optimizing your storage" http://findarticles.com/p/articles/mi_m0BRZ/is_11_23/ai_111650315/
- Sun_SRM-A-practitioners-approach_2002.pdf : Storage Resource Management: A Practitioner's Approach
- Media disposal guidelines: http://dual-life.com/dual-life/Media_Disposal_guidelines_Dual_Life_Tape_final_1_.pdf
- Tape Reuse survey: http://searchstorage.techtarget.com/magazineFeature/0,296894,sid5_gci1257831_mem1,00.html
- Database backup (and failure) reference:
    - Oracle Backup-Recovery Exam Guide_200803.pdf