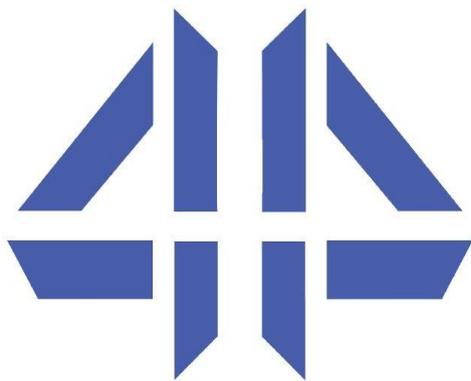


4P Advisory Services

V1.0

# Training Program on Basics of Storage and Backup



**4P Advisory Services**

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## **What is Storage and Backup?**

Storage refers to the process of storing data in a digital format on physical devices like hard drives, solid-state drives, or network-attached storage.

Backup is the process of creating a copy of data, software, or systems in case the original is lost or damaged. The backup is usually stored on a separate device or location, which can be used to restore the original data in case of any data loss.

## **Why Storage and Backup are important?**

- **Data protection:** Storing data in a secure and reliable way is essential for ensuring data protection. Backup and recovery processes ensure that data can be restored in the event of data loss.
- **Compliance requirements:** Storing data in a backup system helps ensure that businesses are meeting their legal and regulatory requirements.
- **Disaster recovery:** A backup system ensures that data can be quickly restored to minimize downtime.
- **Cost savings:** Effective storage and backup systems can help businesses reduce costs associated with downtime, data loss, and recovery efforts.
- **Optimizing:** By selecting the correct type of storage, based on the access requirements and the costs, organizations can optimize the storage requirements for effectiveness & efficiency.

## **Why learn about Storage and Backup?**

- Understand how data is organized, stored, and accessed in the enterprise's various storage systems.
- Understand how to prevent data loss and how to restore lost or damaged data. This knowledge is crucial for maintaining the organization's data integrity and availability.
- Learn about backup to understand how backup processes are carried out and how backup strategies differ based on the type of data, storage systems, and recovery objectives.
- The knowledge of storage and backup technologies has become essential for professionals, to make them valuable assets for their organizations.

**Audience:**

The audience for this training program would typically be individuals who are interested in or working in information technology. This may include IT professionals, system administrators, network engineers, or software developers. It is also for the students who are likely to join large organizations in entry-level positions.

**Learning Objectives:**

- Understand the different types of storage, such as direct-attached storage (DAS), network-attached storage (NAS), and storage area network (SAN).
- Understand the importance of backup and disaster recovery, and the different types of backups.
- Evaluate different backup methods, including local, remote, and cloud backup, and select the one that best fits their organization's needs.
- Understanding access controls and security for storage and backup to manage access controls and security best practices.
- Participants should be able to understand monitoring and alerting for storage and backup systems, and identify key performance indicators.

**Candidate Prerequisites**

- Basic computer skills: Candidates should have basic computer skills,
- Familiarity with cloud computing and networking
- Familiarity with virtualization
- Understand the basic storage blocks and connectivity.

**Lab requirements for the classroom:*****Software:***

- Operating systems such as Windows Server / Windows OS and Linux

***Hardware***

- Desktop or a laptop computer per student with a good internet connection
- Local Storage, such as Hard Disk, DAS/SAN/NAS etc. (Optional)

***Cloud Infrastructure:***

Require access to AWS and Microsoft Azure cloud platforms, which may require creating accounts and configuring the necessary permissions to access and use the required services.

Requires an account on the relevant platforms, such as AWS(Amazon Web Services), Microsoft Azure and GCP (Google Cloud Platform)

**Training Outline:****Day 1****Session 1: Introduction to Storage**

- *Overview of storage concepts*
- *Types of storage: Direct-attached storage (DAS), Network-attached storage (NAS), and Storage area network (SAN)*
- *Factors to consider when selecting a storage type*
- *Activity: Creating a virtual disk and attaching it to a virtual machine in AWS*

**Session 2: Backup Fundamentals**

- *Importance of backup and disaster recovery*
- *Types of backups: Full, Incremental, and Differential*
- *Backup methods: local, remote, cloud*
- *Activity: Creating an S3 bucket in AWS and configuring backup policies for an EC2 instance*

**Session 3: Access Controls and Security for Storage and Backup**

- *Overview of access controls for storage and backup*
- *Best practices for securing storage and backup systems*
- *Activity: Configuring access controls for an S3 bucket in AWS*

**Session 4: Monitoring and Alerting for Storage and Backup**

- *Overview of monitoring and alerting for storage and backup systems*
- *Key performance indicators (KPIs) and metrics to monitor*
- *Setting up alerts and notifications*
- *Activity: Creating Cloud Watch alarms in AWS to monitor S3 bucket usage and backup activity*

## ***Day 2***

### ***Session 5: Data Management and Recovery***

- *Overview of data management and recovery strategies*
- *Data retention policies*
- *Disaster recovery planning*
- *Activity: Restoring data from backup in AWS*

### ***Session 6: Advanced Backup and Storage Concepts***

- *Advanced backup techniques such as snapshotting and replication*
- *High availability and fault tolerance in storage systems*
- *Activity: Configuring a highly available storage system in AWS*

### ***Session 7: Cloud Storage and Backup Solutions***

- *Overview of cloud storage and backup solutions*
- *Cloud storage providers and their offerings*
- *Backup and disaster recovery in the cloud*
- *Activity: Implementing a cloud backup solution in AWS*

### ***Session 8: Best Practices for Storage and Backup***

- *Best practices for designing and implementing storage and backup solutions*
- *Common mistakes and how to avoid them*
- *Activity: Designing and implementing a storage and backup solution for a hypothetical scenario*