**Data lake:** An **Azure Data Lake** is a highly scalable and secure cloud-based storage service provided by Microsoft Azure. It is designed specifically for storing, processing, and analyzing large volumes of data in a variety of formats, including structured, semi-structured, and unstructured data. Azure Data Lake facilitates big data analytics and machine learning workloads.

**Soft Delete in Azure Cloud**

Soft delete in Azure refers to the retention of deleted resources (such as blobs, containers, or storage accounts) for a specified period before they are permanently deleted. This provides a safety net in case of accidental or malicious deletion. For example:

* **Blob Storage**: When a blob is deleted, it is retained for a configured retention period (default is 7 days), allowing you to restore it.
* **Storage Account**: When a storage account is deleted, its data is retained for a period (usually 14 days), allowing recovery before permanent deletion.

**Enabling Soft Delete for Blob Storage**:

* Azure Portal: Go to your storage account > Data Protection > Enable Soft Delete for blobs > Set retention period.
* Azure CLI: az storage blob service-properties delete-policy update --account-name <StorageAccount> --enable true --days <RetentionPeriod>

**Life Cycle of an Azure Storage Account**

The lifecycle of an Azure Storage Account includes:

1. **Creation**: Set up the storage account via the Azure Portal, CLI, or other tools. Choose the storage type (e.g., Standard, Premium) and replication option (e.g., LRS, GRS).
2. **Use**: Store data, run applications, back up information, etc.
3. **Management**: Monitor performance using Azure Monitor. Configure retention, alerts, and data protection features.
4. **Deletion**: Once the storage account is no longer needed, it can be deleted, and with soft delete enabled, resources are retained temporarily for recovery.

**How to Make a Website Using a Storage Account**

Azure Storage Account can host static websites (HTML, CSS, JS).

Steps:

1. **Create a Storage Account**: Go to the Azure Portal > Create > Storage Account > Choose region and settings.
2. **Enable Static Website Hosting**: Navigate to Data Management > Static website > Enable, set the index document (e.g., index.html), and error page.
3. **Upload Website Files**: In the $web container, upload your website files.
4. **Access the Website**: Use the primary endpoint URL from the static website configuration to access your site.

**How to Create a File Share in a Storage Account and Share with Multiple Linux Devices**

Azure File Storage allows sharing data via SMB protocol, compatible with Linux.

Steps:

1. **Create a File Share**:
   * Go to the Storage Account > File shares > Create File Share > Set a name and quota.
2. **Obtain Storage Credentials**:
   * Copy the storage account name and key from the Access keys section.
3. **Mount the File Share on Linux**:
   * Install cifs-utils if necessary: sudo apt-get install cifs-utils.
   * Create a mount point: sudo mkdir /mnt/azurefileshare.
   * Mount with the command:

sudo mount -t cifs //yourstorageaccountname.file.core.windows.net/yourfileshare /mnt/azurefileshare \ -o vers=3.0,username=yourstorageaccountname,password=yourstorageaccountkey,dir\_mode=0777,file\_mode=0777,serverino