**AIM:** Understand how to implement and manage encryption keys in Azure AZ-900. **CO3**

**OBJECTIVE:** Understand the importance of encryption in securing sensitive data. Explore methods for generating or importing cryptographic keys into Azure Key Vault.

**TOOLS:**

1. **Azure Portal:** Provision and configure Azure Key Vault.
2. **Azure Key Vault:** Store and manage cryptographic keys.
3. **Azure CLI / PowerShell:** Scripting and automation of key management tasks.
4. **Azure Monitor:** Monitor key usage, access, and compliance.
5. **Azure Security Center:** Security recommendations and best practices.

**Theory:**

Encryption is the process of encoding data to make it unreadable without the correct decryption key. Azure Key Vault is a cloud service that provides secure storage and management of cryptographic keys, secrets, and certificates. It helps safeguard sensitive data by allowing users to store keys securely and control access to them.

**Steps:**

1. **Provision Azure Key Vault:** Create a new Key Vault instance in the Azure Portal.
2. **Configure Access Policies**: Define access policies to specify who can manage and access keys stored in Key Vault.
3. **Generate or Import Keys:** Create new cryptographic keys within Key Vault or import existing keys from external sources.
4. **Enable Key Rotation:** Implement key rotation policies to periodically rotate encryption keys for enhanced security.
5. **Manage Access Control**: Configure RBAC permissions to control who can perform key management operations.
6. **Monitor Key Usage:** Utilize Azure Monitor to monitor key usage, access, and compliance with security policies.

**Output:**

The output of implementing and managing encryption keys in Azure includes:

* A provisioned Azure Key Vault instance configured with appropriate access policies.
* Generated or imported cryptographic keys securely stored in Key Vault.
* Key rotation policies implemented to regularly rotate encryption keys.
* RBAC permissions configured to control access to key management operations.
* Monitoring and logging set up to track key usage, access, and compliance.

**Learning Outcome:**

* Knowledge of encryption concepts and the importance of data security.
* Proficiency in provisioning and configuring Azure Key Vault for key management.
* Skills in generating, importing, and rotating cryptographic keys securely.
* Understanding of access control mechanisms and RBAC permissions in Azure Key Vault.
* Ability to monitor key usage, access, and compliance using Azure Monitor.

Video Links  
<https://www.youtube.com/watch?v=AA3yYg9Zq9w>