3-1-1: Examining Data Backup Activities and Strategies

After completing this episode, you should be able to:

- Identify and explain the significance of implementing backup strategies, given a scenario.

Description: In this episode, the learner will examine strategies used in data backups, such as scheduling, replication, backup locations, and testing. We will also explore backup retention strategies, such as Grandfather-Father-Son (GFS), Tower of Hanoi, time-based retention, and more.

- Describe common activities and components of data backups
    - Scheduling
        - ♠ Regularly scheduled backups ensure data is frequently updated and reflects recent changes, minimizing potential data loss in a recovery scenario.
    - Replication
        - ♠ Replicating backups in multiple locations, including across different cloud regions or providers, increases redundancy and resilience against data loss.
    - Backup locations
        - ♠ On-Site - Backups stored on-site offer quick access for recovery but can be vulnerable to local disasters.
        - ♠ Off-Site - Storing backups at a different location enhances data safety by protecting against site-specific risks.
    - Backup encryption
        - ♠ Crucial for protecting sensitive information against unauthorized access, both at rest and during transmission.
    - Backup testing
        - ♠ Ensuring data recoverability
            - ♠ Regular tests of backup systems are essential, ensuring data can be effectively restored when needed.
        - ♠ Maintaining data integrity
            - ♠ Checking the integrity of backups confirms that the data is accurate and has not been corrupted during storage or transfer.
- Describe the significance of backup retention
    - Defines how long backup copies are kept before being deleted or archived, balancing between accessibility, compliance requirements, and cost of storage.
- Describe backup retention strategies
    - Grandfather-Father-Son (GFS)
        - ♠ This is a popular method for managing backup cycles.
        - ♠ It involves three levels of backups: daily (son), weekly (father), and monthly (grandfather).
        - ♠ This strategy helps in reducing the storage space by having less frequent backups as the data ages, while still allowing for different recovery points.
    - Tower of Hanoi
        - ♠ A complex scheme sequences of backups based on the mathematical puzzle, so newer ones are more frequent.
        - ♠ Lengthens retention periods without proportionately expanding storage requirements;
        - ♠ Optimizes storage use by reducing the frequency of older backups.
    - Time-based retention
        - ♠ A straightforward approach simply retaining backups for a defined period, such as 30, 60, or 90 days.

- Backups are automatically deleted or archived after this period.
- Suitable for environments where regulatory requirements define data retention periods.

- Legal and compliance-driven retention
  - Often, the retention periods are dictated by legal or compliance requirements specific to an industry or type of data. For example, financial records need to be kept for a minimum number of years according to regulatory standards.